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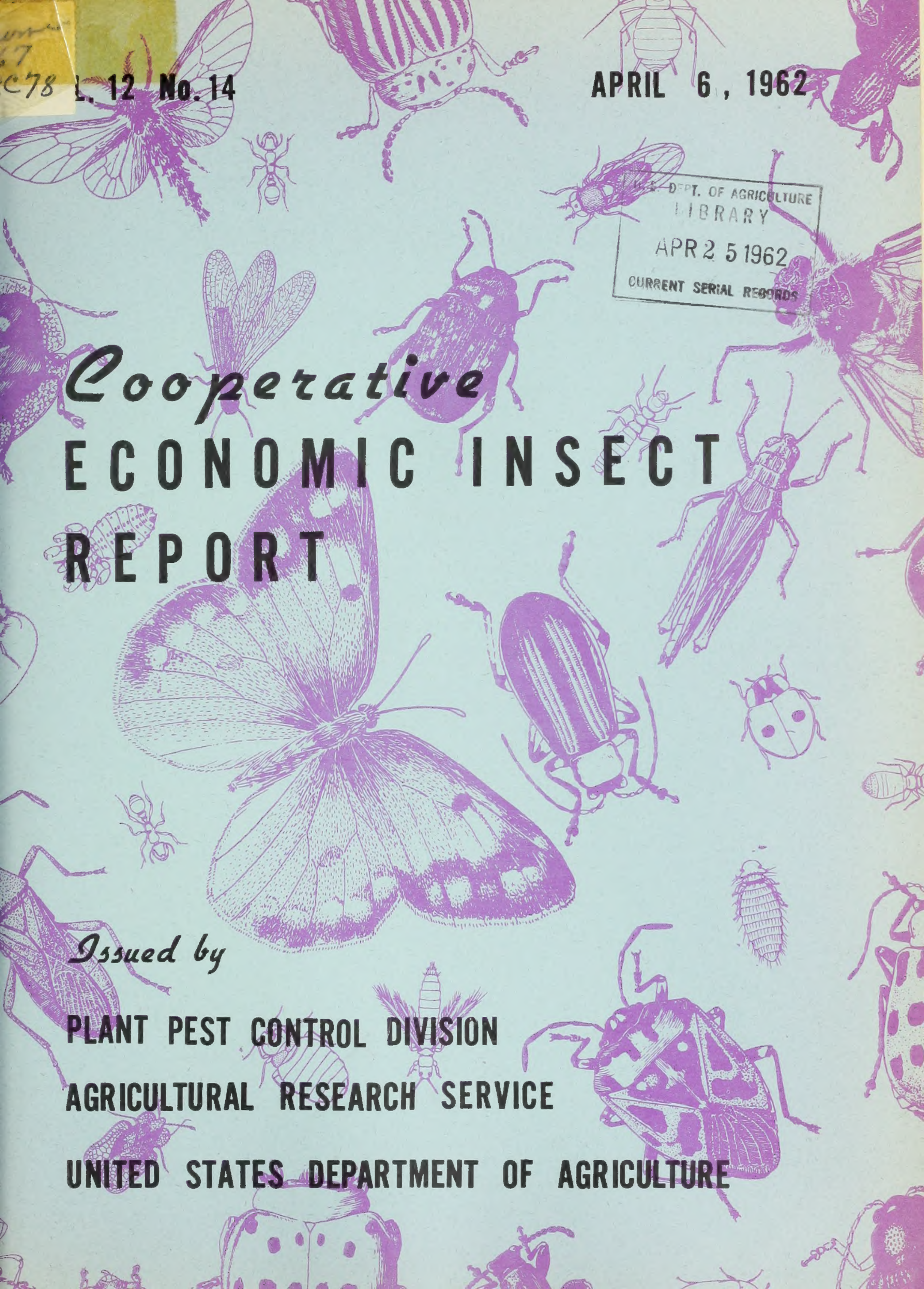

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APRIL 6, 1962

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
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United States Department of Agriculture
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Volume 12 April 6, 1962 Number 14

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

BROWN WHEAT MITE apparently damaging wheat already suffering from winter kill and dry weather in certain western panhandle areas of Texas; also light to medium in southwest and west central Oklahoma, and light in Baca County, Colorado, and in southwest Kansas. WHEAT CURL MITE causing a serious situation on wheat in Meade County, Kansas. (p. 305). EUROPEAN CORN BORER survival survey in Illinois showed living borers to average 74.34 percent through March; a figure that closely compares with previous years. No pupation of overwintering borers noted in Delaware to March 28. ALFALFA WEEVIL adults causing damage to alfalfa in Otero and Crowely Counties, Colorado, and active in Emery and Grand Counties, Utah; controls for adults reported in several Nevada counties. Alfalfa showing 30-40 percent larval feeding injury in Georgia fields not treated in fall of 1961. (p. 306). GREEN CLOVERWORM building up on alfalfa and vetch in 3 east central Texas counties. (p. 307). GREEN PEACH APHID infestations increased rapidly on potatoes and remain high on sugar beets and safflower in central Arizona. (pp. 307, 308). TEA SCALE extremely heavy on camellia in Lee and Russell Counties, Alabama. (p. 310). SCREW-WORM infestations found in 3 additional counties within the sterile fly-drop area in southern Texas; total of 77 infestations reported in area during week ending March 29. (p. 312). PINE NEEDLE SCALE especially severe throughout New York; controls will be required. (p. 314).

SOME FIRST SEASONAL REPORTS

ALFALFA WEEVIL larvae present in Delaware and Maryland; and CLOVER LEAF WEEVIL larvae present in Kansas, Missouri, Delaware and Maryland. (p. 306). PEA APHID nymphs present in Delaware and Maryland and the species is present in Kansas. (p. 307). Newly hatched larvae of EASTERN TENT CATERPILLAR noted in Maryland; and SPRING CANKERWORM adults present in Kansas, Missouri and Delaware. (p. 310). ROSE APHID appearing in Maryland. (p. 310). WESTERN SUBTERRANEAN TERMITES swarming in Nevada and SUBTERRANEAN TERMITES present in Oklahoma. (p. 312).

FORECASTS

Brood II of PERIODICAL CICADA expected to appear in southern Maryland about mid-May. (p. 308). CANKERWORMS expected to be troublesome in New York. (p. 314).

SPECIAL REPORTS

Boll Weevil Survival Surveys in North and South Carolina, Spring - 1962. Survival approximately 4 times greater than in 1961 in south central South Carolina, 3 times greater in Coastal Plain of North and South Carolina, and 2 times greater than in the preceding year in Piedmont of North and South Carolina and in north central North Carolina. (p. 309).

Summary of Insect Conditions - 1961 (continued)

ORNAMENTAL AND SHADE TREE INSECTS

Ornamental Insects - (p. 315).
Shade Tree Insects - (p. 326).

(Continued on page 304)

DETECTION

New state records reported were BARK BEETLES (Phloeosinus canadensis and P. dentatus) in Ohio (p. 319), and PINE TORTOISE SCALE in Indiana (p. 321).

CORRECTIONS

See page 314.

Reports in this issue are for week ending March 30, unless otherwise indicated.

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WEATHER BUREAU 30-DAY OUTLOOK
APRIL 1962

The Weather Bureau's 30-day outlook for April calls for temperatures to average above seasonal normals east of the Appalachians as well as in the Gulf States and the northern half of the area lying west of the Continental Divide. Below normal temperatures are predicted for the area from Northern and Central Plains eastward to the Great Lakes and Ohio Valley. In unspecified areas, near normal temperatures are in prospect. Precipitation is expected to exceed normal over a broad area extending from the Northern and Central Plains to the east coast. Subnormal amounts are indicated over most areas west of the Continental Divide and over the Southern Plains. In unspecified areas, about normal rainfall amounts are predicted.

WEATHER OF THE WEEK ENDING APRIL 2

The weather this week was largely determined by a storm system which, in the course of the period, moved from the Pacific Northwest to the Atlantic coast. This storm system was responsible for virtually all the week's precipitation which was mostly light to moderate west of the Great Lakes and heavy in the East and South. East of the Rockies, it brought southerly winds and abnormally high temperatures the forepart of the week, only to be followed by much colder weather the latter part. In north central areas, temperatures the first 2 or 3 days of the period ranged mostly in the 60's and 70's. Dickinson and Breien, North Dakota, reported 72° on Tuesday; La Crescent, Minnesota, 66° and Shenandoah, Iowa, 80° on Wednesday. At Lansing, Michigan, 75° on Thursday equaled the record for the date there. Relative to normal, temperatures were even higher in the Northeast the last 3 days of March, when maxima ranged mostly in the 60's and 70's in New York and New England and even reached 80° at a number of stations in New Jersey and Pennsylvania. In northern Maine, maxima in the 70's were 10° to 15° higher than previous early season records. Harrisburg, Pennsylvania, had 80° on Friday. Temperatures for the week averaged from 6° to 12° above normal in the Northeast, but within 3° of normal in the remainder of the country. The week was slightly on the cool side in the Midcontinent area and somewhat warmer than the seasonal average west of the Continental Divide.

The heavy precipitation in the South and East fell during the weekend, and generally totaled from 0.50 inch to 2.00 inches. Much heavier amounts, ranging up to 6 inches or more, fell in the east Gulf coastal region on Saturday when a tornado at Milton, Florida, caused at least 15 deaths, numerous injuries and heavy property damage. Snow fell in the Appalachians; 2 to 4 inches were reported in southeastern Ohio, several inches in West Virginia and Pennsylvania, and 6 to 8 inches in New York State's Adirondacks. Snow cover at lower levels in the Northeast ranges up to 13 inches in northern New England, but has mostly melted elsewhere. Several inches of snow fell in north central areas over the weekend, where the snow cover now is mostly limited to Iowa, the eastern Dakotas, Minnesota, Wisconsin and Upper Michigan. Depths range up to 6 inches in Iowa and northwestern Illinois, 19 inches in North Dakota, 16 inches in Minnesota and 17 inches in Michigan. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - TEXAS - Light, noneconomic infestations fairly general over small grain areas, with localized infestations in parts of north central, central and panhandle areas, Dry weather contributing factor to damage. (Texas Coop. Rpt.). OKLAHOMA - Populations remained generally light; 6-60 per linear foot in west central and 1-25 per linear foot in southwest areas, with occasional threatening populations in isolated spots. Light populations of 30-40 per linear foot noted on wheat in Bryan County and 40 per linear foot in Marshall County. Counts remained noneconomic in fields checked throughout northwest, north central and east central areas. (Okla. Coop. Sur.). KANSAS - Found only in Morton County in southwest; counts much less than one per foot of row. Damage not expected to be very serious during 1962. (Peters).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Infestations have increased on barley in central area, but remain light in comparison with previous years. (Ariz. Coop. Sur.). TEXAS - Very light population of 2 per 10 young grain sorghum plants in Brazos County; plants in 2-leaf stage. (Newton).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Very low counts (fewer than 5 per linear foot) of this and Rhopalosiphum padi observed in fields checked in east central area. Higher counts of 150 per linear foot noted in Bryan County and 600 per linear foot in Marshall County. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Populations of 10-25 per linear foot observed on oats in Sequoyah County and 4-15 noted on wheat in Bryan and Marshall Counties. (Okla. Coop. Sur.).

YELLOW SUGARCANE APHID (Sipha flava) - OKLAHOMA - Light populations observed on wheat in Bryan County; 4-5 per linear foot. (Okla. Coop. Sur.).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Occasional specimen observed on wheat and alfalfa in Haskell area, Muskogee County. (Okla. Coop. Sur.).

A LEAFHOPPER (Cuerna costalis) - COLORADO - Numerous in a field of wheat in Elbert County. (Hantsbarger).

HESSIAN FLY (Phytophaga destructor) - MISSOURI - In one field of wheat checked in in southwest area, 4 percent of plants infested with 1-5 larvae per stem. (Munson).

BROWN WHEAT MITE (Petrobia latens) - COLORADO - Present on wheat, barley and range grasses in Baca County; ranged 10-40 per linear foot of row. Trace numbers found in Adams and Kiowa Counties; none found in Otero and Crowley Counties. (Schweissing, Jenkins). KANSAS - Counts 0-50 per foot of row, averaged 5 or less, in wheat in southwest area; no damage observed. (Peters). OKLAHOMA - Light to medium, scattered populations of 50-800 per linear foot in southwest and up to 500 per sweep in west central areas continue on wheat. (Okla. Coop. Sur.). TEXAS - Apparently damaging wheat already suffering from winter kill and dry weather in certain western panhandle areas. Damage specifically caused by this mite very difficult to assess. (Texas Coop. Rpt.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light populations of 15 per linear foot observed on wheat in Bryan County and 10-25 per linear foot in Webber Falls area, Muskogee County. (Okla. Coop. Sur.).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Infestations range zero to heavy in southwest area; quite spotty and not consistent over entire area. Serious situation has developed in Meade County where highest populations have been found to date. (Somsen).

A SPIDER MITE (Tetranychus sp.) - OKLAHOMA - Localized infestations reported in Texas County. (Okla. Coop. Sur.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Percent living borers in the field, by district, for 1962 compared with 1961, respecitvely, were as follows: West-southwest, 88.0 and 78.4; west, 64.2 and 73.6; central, 80.0 and 66.4; northwest, 78.3 and 74.0. The average through March is 74.34 percent of borers alive, and apparently compares closely with previous years. It is questionable that sectional averages for west-southwest and central areas are entirely dependable, but west and central area figures are based on 95 and 120 forms, respectively. The State average is the reliable figure. (Ill. Ins. Rpt.). DELAWARE - No pupation of overwintering borers had occurred in State as of March 28. (Burbutis).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Survey continued to determine winter survival; 13 fields, mostly in central area, showed 27.7 percent of stalks had been infested with overwintering larvae. Survival was 17.9 percent. (Ark. Ins. Sur.). MISSOURI - Counts of overwintering larvae made in 3 fields in southwest areas, as follows: Field 1 - 20 girdled stalks contained 2 live larvae; field 2 - 35 girdled stalks had 4 live larvae; field 3 - 100 girdled stalks contained 9 live larvae. (Munson).

SUGARCANE BORER (Diatraea saccharalis) - FLORIDA - Infested 95 acres of sweet corn at Canal Point, Palm Beach County. (W. W. Smith).

GRASSHOPPERS - OKLAHOMA - Limited survey of egg-pod depostition made in Cimarron, Beaver, Ellis, Major, Harper, Texas and Woodward Counties; results indicate there will probably be some "hot spots" in all counties surveyed. (Okla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - NEVADA - Controls for adults in progress or mostly completed in Churchill, Douglas, Pershing and Washoe Counties. (Nevada Coop. Rpt.). UTAH - Active in alfalfa examined in southern Emery County and in Moab area, Grand County. (Knowlton). COLORADO - Adult feeding damage occurring in many alfalfa fields in Otero and Crowley Counties; no egg punctures found. Plant growth 1-2 inches. (Schweissing, Jenkins). GEORGIA - Larvae averaged 3 per sweep in field not treated in fall of 1961; occasional larva present in treated fields. Treated field in Gordon County averaged 2 larvae per sweep; other treated fields in county revealed an occasional larva in sweepings. Alfalfa now generally 6-8 inches tall. Fields not treated in fall of 1961 showing 30-40 percent feeding injury to plants. When 50 percent of plants show feeding injury, insecticide applications should be made. (Johnson). MARYLAND - Adults mating in Howard County; newly hatched larvae observed on alfalfa in Calvert, Howard and Worcester Counties. (U. Md., Ent. Dept.). DELAWARE - First instars present on alfalfa in eastern Sussex County; few second instars also present. (Burbutis).

CLOVER LEAF WEEVIL (Hypera punctata) - DELAWARE - Almost full-grown larvae averaging 2-3 per plant on alfalfa in western Kent County; feeding injury noticeable on small new growth. (Burbutis). MARYLAND - Larvae ranged 2-6 per plant on red clover at Bowens, Calvert County. (U. Md., Ent. Dept.). KANSAS - Larvae observed in alfalfa in Pawnee and Hodgeman Counties; averaged less than one per square foot of crown area (Peters). MISSOURI - Very few larvae observed on clover and alfalfa in southwest; only 3 first and second instars observed in 2 fields checked. Counts averaged one small larva per square foot in field of red clover. (Munson).

CLOVER ROOT CURCULIO (Sitona hispidula)- MARYLAND - Adults common in alfalfa at Guilford, Howard County. (U. Md., Ent. Dept.).

PEA LEAF WEEVIL (Sitona lineata) - OREGON - Adults flying in newly emerged clover in Polk County, March 29. (Capizzi).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - Light populations of egg-laying females (2-3 per 10 sweeps) observed on alfalfa in east central area. (Okla. Coop. Sur.).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Adults active in alfalfa in southern counties. Populations generally light. (N. M. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - ARIZONA - Medium to heavy infestations present in alfalfa statewide. (Ariz. Coop. Sur.). NEW MEXICO - Populations unusually light on alfalfa for this time of year in Dona Ana, Sierra, Eddy and Chaves Counties. (N. M. Coop. Rpt.). TEXAS - Counts ranged 25-200 per 5 sweeps on alfalfa and vetch in Brazos, Burleson and Robertson Counties; high percentage of winged forms noted. (Newton). OKLAHOMA - Up to 300 per square foot noted on alfalfa in Bryan County; lower counts of 10-25 per linear foot noted in Jackson and Kiowa Counties. Light counts of 5-40 per sweep made throughout east central area. (Okla. Coop. Sur.). KANSAS - Ranged 0-5, averaged less than one, per square foot of crown area in alfalfa along Arkansas River Valley from Pawnee to Hamilton Counties. (Peters). MARYLAND - First nymphs of season swept from alfalfa in Worcester and Calvert Counties. (U. Md., Ent. Dept.). DELAWARE - Nymphs and wingless females fairly common on alfalfa in eastern Sussex County; present in New Castle and Kent Counties. (Burbutis).

SPOTTED ALFALFA APHID (Therioaphis maculata) - TEXAS - Counts ranged 50-250 per sweep in alfalfa and vetch in Brazos, Burleson and Robertson Counties; many winged forms present. (Newton). OKLAHOMA - Populations of 30 per square foot observed on alfalfa in Bryan County; fewer than one per 10 sweeps noted in Bixby area, Tulsa County. None observed in other areas of east central part of State. (Okla. Coop. Sur.). KANSAS - None observed in fields of alfalfa checked in southwest area. (Peters). COLORADO - Has not been found recently in southeastern part of State. (Schweissing, Jenkins).

COWPEA APHID (Aphis sp., probably craccivora) - NEW MEXICO - Occasional winged adult found in alfalfa fields in southern Dona Ana County. (N. M. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Averaged 2-4 per 10 sweeps in alfalfa in east central area. (Okla. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - UTAH - L. elisus and L. hesperus active in alfalfa at Green River, Emery County, and at Moab, Grand County. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - NEW MEXICO - Light infestations, 2-8 per 50 sweeps, noted in alfalfa in Dona Ana County. (N. M. Coop. Rpt.).

THRIPS - NEW MEXICO - Populations unusually light for time of year in alfalfa fields of Dona Ana, Sierra, Eddy and Chaves Counties. (N. M. Coop. Rpt.).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Occasional adult noted in alfalfa checked in Dona Ana, Eddy and Chaves Counties. (N. M. Coop. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - TEXAS - Building up on alfalfa and vetch in Brazos, Burleson and Robertson Counties; up to 15 per 5 sweeps noted in some fields. All stages present. (Newton).

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Occasional specimens observed in alfalfa in southwest; counts much less than one per square foot of crown area in fields checked. None observed in any fields of wheat checked in same area. (Peters). COLORADO - Larval counts of this species and Agrotis orthogonia (pale western cutworm) light on wheat, barley and alfalfa in southeastern part of State. (Schweissing, Jenkins).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Infestations remain high in safflower in central area of State. (Ariz. Coop. Sur.).

GREEN JUNE BEETLE (Cotinis nitida) - GEORGIA - Averaged 14 per square foot in fescue pasture in Franklin County. Averaged one larva per square foot in 2 fields treated in September 1961. (Johnson).

AN ERIOPHYID MITE (Aceria paracalifornica) - CALIFORNIA - Heavy populations occurring on leaves of California sagebrush (Artemisia californica) in the Gustine area, Merced County. (Cal. Coop. Rpt.).

WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) - UTAH - Becoming active in Green River and Moab areas. (Knowlton).

FRUIT INSECTS

PERIODICAL CICADA (Magicicada septendecim) - MARYLAND - Brood II due to appear in southern portion of State during 1962. This is a moderate size brood which occurs along the eastern seaboard from Connecticut to North Carolina, and should not be confused with Brood X which occurred over most of Maryland in 1953 and is due again in 1970. Males should be evident in Anne Arundel, Prince Georges, Charles, Calvert and St. Marys Counties beginning in mid-May. Females, which appear shortly after the males, cause damage to young transplanted trees in nurseries and orchards and cause some damage to older trees. Females greatly prefer to lay eggs in oak, hickory, apple, peach, pear and grape, but except for egg-laying injury, these pests cause little harm to plants and trees. (U. Md., Ent. Dept.).

APPLE APHID (Aphis pomi) - DELAWARE - Eggs have hatched; aphids now feeding on buds in Kent County. (MacCreary).

ROSY APPLE APHID (Anuraphis rosea) - OREGON - Feeding on developing buds in apple trees near Corvallis, Benton County. (Jones).

APHIDS - TEXAS - Light, spotted infestations of undetermined species appearing in new growth of freeze-damaged citrus trees in Cameron County. (Texas Coop. Rpt., Day). NEW JERSEY - Eggs found in only one apple orchard in Burlington County. (Ins.-Dis.-Weed Newsltr., March 27).

EUROPEAN RED MITE (Panonychus ulmi) - NEW JERSEY - Overwintering eggs easy to find in 2 or 3 apple orchards but in several other orchards populations were light in Burlington County on March 26. (Ins.-Dis.-Weed Newsltr.).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - MARYLAND - Overwintered nymphs infested peach trees at Mount Lena, Washington County. (U. Md., Ent. Dept., March 19).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Light, widespread populations attacking plum and peach trees in Caldwell, Comal and Guadalupe Counties. (Texas Coop. Rpt., Massey).

SHOT-HOLE BORER (Scolytus rugulosus) - UTAH - Damaged older cherry trees in orchard at Bringham City, Box Elder County. (Knowlton).

A FILBERT APHID (Myzocallis coryli) - OREGON - Observed on newly unfolding filbert leaves in Polk County orchards on March 28. (Capizzi).

A MITE (Xenocaligonellidus sp., probably ovaerialis) - FLORIDA - Collected on grape at Electra, Marion County; det. E. W. Baker. (Graham, Jan. 19).

TRUCK CROP INSECTS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Infestations increased rapidly on potatoes and remain high on sugar beets in central area. (Ariz. Coop. Sur.). OKLAHOMA - Populations up to 2 per leaf on spinach noted in some fields in Bixby area of Tulsa County. (Okla. Coop. Sur.).

APHIDS - TEXAS - Light, local populations of undetermined species attacking okra in Cameron County. (Texas Coop. Rpt., Day).

BEET LEAFHOPPER (Circulifer tenellus) - COLORADO - Trace numbers found on tansy-mustard in southeast area. (Hantsbarger).

STRAWBERRY WEEVIL (Anthonomus signatus) - ALABAMA - Large, increasing population reported in Cullman County. (Buttram).

COTTON INSECTS

BOLL WEEVIL SURVIVAL SURVEYS IN NORTH AND SOUTH CAROLINA

SPRING - 1962

Spring surface woods trash examinations were made during the period March 6-22, 1962, in the same four representative areas of South Carolina and North Carolina in which fall examinations were made in 1961 to determine the number of live boll weevil (Anthonomus grandis) adults that survived the winter. In each area, a total of 30 locations (farm sites) was sampled with 3 samples of 2 square yards each being taken at each location. The same locations were sampled in both the fall and spring examinations. The representative areas sampled are as follows: Area 1 - south central South Carolina (Orangeburg, Dorchester and Bamberg Counties); area 2 - Coastal Plain of South and North Carolina (Florence, Darlington, Marlboro Counties, S. C.; and Scotland County, N. C.); area 3 - Piedmont of South and North Carolina (Anderson, Greenville, Spartanburg Counties, S. C.; and Mecklenburg, Cleveland, Union Counties, N. C.); and area 4 - north central North Carolina (Nash, Wilson, Franklin Counties). The average number of live weevils found per acre in areas 1, 2, 3 and 4 was 1,667, 3,654, 2,823 and 968, respectively. The percent survival for these areas was 49.6, 26.8, 33.7 and 30.5, respectively. The percent survival was lowest in areas 2 and 4 and highest in areas 1 and 3. The 1962 average survival figure of 1,667 is approximately 4 times greater than the 1961 spring average of 376 weevils per acre in area 1. The survival figure of 3,654 weevils per acre in area 2 is approximately 3 times the 1961 survival figure of 1,129 weevils per acre. Survival figures of 2,823 and 968 weevils per acre in areas 3 and 4 are approximately 2 times the 1961 survival figures of 1,558 and 430 weevils per acre. In Florence County, South Carolina, fall and spring examinations have been made since 1938. An average of 3,766 weevils per acre was found in the spring of 1962 in this county, with a winter survival of 30.7 percent. This percent survival in the highest since the spring of 1956. (ENT, PPC).

DARKLING BEETLES - TEXAS - Damage in 5 fields of 54 checked in Rio Grande Valley warrented controls. (Deer).

CELERY LEAF TIER (Udea rubigalis) - CALIFORNIA - Reference is made to Summary of Cotton Insects for 1961 as carried in CEIR 12(11):229. This pest was reported to have developed medium to heavy populations very locally in Kern and Kings Counties. Recent information developed by George Okumura, California Department of Agriculture, has now determined that previous records of U. rubigalis have been confused with U. profundalis. U. rubigalis occurs in the area south of the Tehachapi Mountains and U. profundalis north of this range. (Cal. Coop. Rpt.).

CUTWORMS - TEXAS - Damage by unspecified species in 5 of 54 fields checked in Rio Grande Valley, warranted control. (Deer).

COTTON APHID (Aphis gossypii) - TEXAS - Light infestations reported from 3 locations in Rio Grande Valley. (Deer).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Light infestation reported northwest of Mission, Hidalgo County. (Deer).

THRIPS - TEXAS - Light infestations of unspecified species reported from 3 locations in Rio Grande Valley. (Deer).

PILLBUGS - TEXAS - Destroyed several acres of cotton at Harlingen, Cameron County. Feeding occurred at night. Described as beginning at outer edges of cotyledonous leaves and progressing to stem. Only cotton beginning to emerge was being damaged. Control satisfactory. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - OKLAHOMA - Light populations occurred on pine seedlings in McCurtain County area. (Okla. Coop. Sur.).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - TEXAS - Moderate to heavy, widespread populations attacking oak trees in Blanco County. (Texas Coop. Rpt., Massey). ARKANSAS - Nests observed in Pulaski, Faulkner, Conway and Pope Counties week of March 31. (Ark. Ins. Sur.). MARYLAND - First newly hatched larvae of season observed on native cherries at Island Creek, Calvert County. (U. Md., Ent. Dept.).

FOREST TENT CATERPILLAR (*Malacosoma disstria*) - TEXAS - Widespread, light to heavy populations attacking oak trees in Caldwell and Guadalupe Counties. (Texas Coop. Rpt., Massey).

SPRING CANKERWORM (*Paleacrita vernata*) - KANSAS - First big adult emergence on elms and other shade trees occurred March 23 in Geary and Riley Counties. (Thompson). MISSOURI - Adults observed for first time this season in central area. (Munson). DELAWARE - Adults common at lights in New Castle County on March 25. (Bray).

CARPENTERWORM (*Prionoxystus robiniae*) - CALIFORNIA - Larvae locally heavy in bark of California live oak trees in El Cajon, San Diego County. Adults of a predaceous ostomid beetle (*Temnochila virescens*) and a nautical borer (*Xylotrechus nauticus*) heavy on same trees. (Cal. Coop. Rpt.).

ASH BORER (*Podosesia syringae fraxini*) - COLORADO - Reported active on ash and lilac in vicinity of Denver. (Hantsbarger).

A SPIDER MITE (*Oligonychus platani*) - CALIFORNIA - Medium population occurring on live oak trees in Pauma Valley, San Diego County. (Cal. Coop. Rpt.).

ROSE APHID (*Macrosiphum rosae*) - MARYLAND - Beginning to appear on roses in Prince Georges County. (U. Md., Ent. Dept.).

POTATO APHID (*Macrosiphum euphorbiae*) - CALIFORNIA - Heavy populations present on iris plants in Brea, Orange County. (Cal. Coop. Rpt.).

APHIDS - ARIZONA - Several species increasing on roses and other flowers and shrubs statewide. (Ariz. Coop. Sur.).

Coccids in Florida - *Chrysomphalus aonidum* severely infested *Noronhia emarginata* at Miami, Dade County, on February 13; *C. dictyospermi* moderately infested euonymus at De Land, Volusia County, on March 21. *Diaspis carueli* infested *Juniperus* sp. at Miami on March 20. Camellias were lightly infested by *Fiorinia theae* at Indian River City on February 5 and moderately to severly infested at Cocoa on March 19 in Brevard County. *Phenacaspis cockerelli* moderately infested 20 southern magnolia trees at Fort Pierce, St. Lucie County, on March 19. *Pseudaulacaspis major* severely infested *Flacortia indica* at West Palm Beach, Palm Beach County, on March 9. *P. pentagona* severely infested 40 goldraintrees at Fort Lauderdale, Broward County, on January 22. (Fla. Coop. Sur.).

EUONYMUS SCALE (*Unaspis euonymi*) - OKLAHOMA - Reported on shrubs in Washington and Mayes Counties. (Okla. Coop. Sur.).

TEA SCALE (*Fiorinia theae*) - ALABAMA - Infestations extremely heavy on camellia in Lee and Russell Counties. (Buttram).

MEALYBUGS - CALIFORNIA - Eggs and adults of *Spilococcus cactearum* and *Pseudococcus* obscurus heavy on cactus plants in a nursery in Hayward, Alameda County. (Cal. Coop. Rpt.).

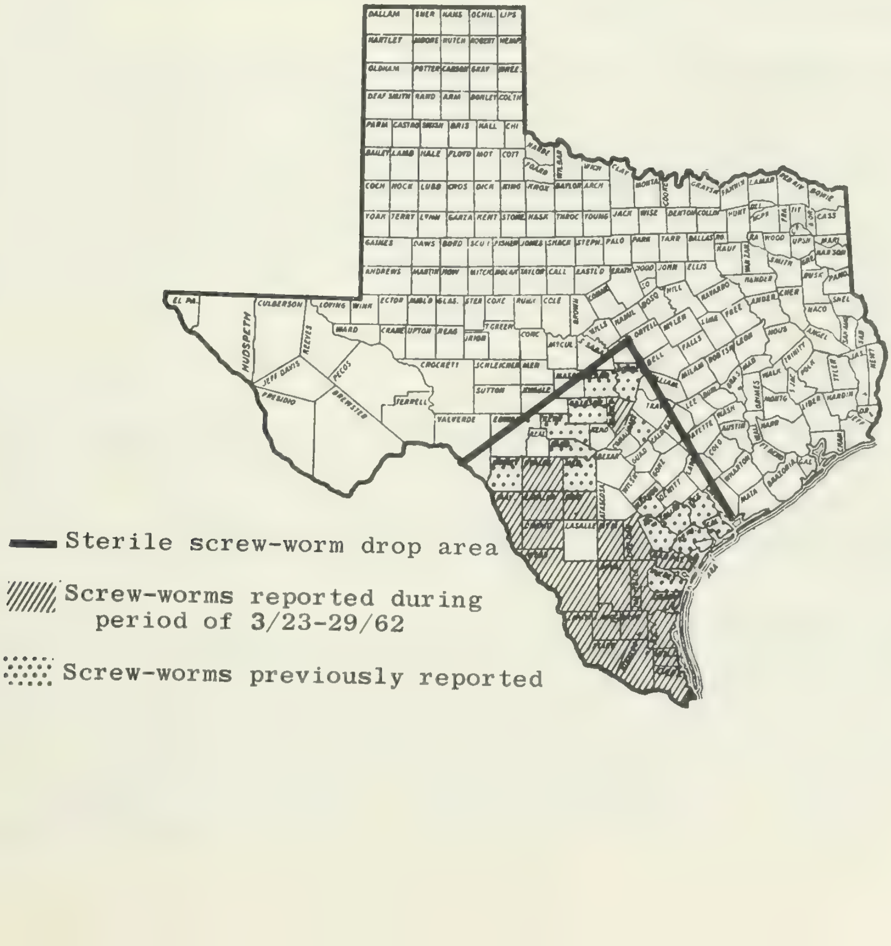
A FLATHEADED WOOD BORER (Anthaxia aeneogaster) - CALIFORNIA - Adults medium on narcissus blooms on Daffodil Hill in Volcano, Amador County. (Cal. Coop. Rpt.).

A HOLLY LEAF MINER (Phytomyza sp., undescribed) - DELAWARE - Full-grown larvae and pupae of this large blotch miner present in American holly in Sussex County. (Kelsey, Burbutis).

SPRUCE SPIDER MITE (Oligonychus ununguis) - ARIZONA - Increasing infestations damaging arborvitae in central area. (Ariz. Coop. Sur.). MARYLAND - Eggs abundant on spruce in Silver Spring, Montgomery County. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominovorax) - TEXAS - Release of sterile flies in the southern area continued. The map below gives the status of the program in southern Texas as of March 29. During the week ending March 29, 10,392,400 sterile flies were released over an area of 44,563 square miles, with the release rate being 200-250 flies per square mile for this period. Also during the week, 77 infestations were reported, including 4 in 3 new counties, as follows: Dimitt County - 2; McMullen County - 1; Blanco County - 1. Uvalde County has received an increased release of 176,000 sterile flies during this period to further decrease chances of population buildup. (Anim. Dis. Erad. Div.).


▬ Sterile screw-worm drop area
▨ Screw-worms reported during period of 3/23-29/62
⁘ Screw-worms previously reported

CATTLE GRUBS (Hypoderma spp.) - MARYLAND - Averaged 3 per animal in herd of 23 cows and heifers at Buckeystown, Frederick County. (U. Md., Ent. Dept.). OKLAHOMA - Adult activity of H. lineatum observed about cattle in Pushmataha, Comanche and Texas Counties. (Okla. Coop. Sur.).

SHEEP KED (Melophagus ovinus) - UTAH - Numerous on sheep in Huntingdon-Castle Dale area, Emery County; 2,000 sheep recently treated and an additional 2,000 to be treated. (Knowlton).

HOUSE FLY (Musca domestica) - WISCONSIN - Few have been observed outdoors as of March 30. (Wis. Ins. Sur.).

BLOW FLIES - UTAH - Becoming numerous around swine farms and beef feeding lots in several areas of Weber County. (Knowlton).

CATTLE LICE - OKLAHOMA - Several species continue active in several areas of State. (Okla. Coop. Sur.). UTAH - Annoying cattle in Ogden-Hooper area, Weber County. (Knowlton).

HOG LOUSE (Haematopinus suis) - UTAH - Annoying swine at Hooper and Huntsville, Weber County. (Knowlton).

GRAIN MITE (Acarus siro) - CALIFORNIA - Medium infestation present in flock of 6,000 chickens in Moorpark district, Ventura County. (Cal. Coop. Rpt.).

HOUSEHOLD AND STRUCTURAL INSECTS

BLACK BLOW FLY (Phormia regina) - CALIFORNIA - Larvae, pupae and adults heavy on walls of a residence in Fiddletown, Amador County, and a mountain home in Slug Gulch, El Dorado County. (Cal. Coop. Rpt.).

BED BUG (Cimex lectularius) - UTAH - Infested a home at Helper, Carbon County. (Knowlton).

BOXELDER BUG (Leptocoris trivittatus) - OREGON - Emerging from overwintering sites and causing concern in western area. Abundance appears related to availability of protected areas, such as shingles and loose-barked trees. (Capizzi). UTAH - Entering homes at Castle Dale and Huntington, Emery County. (Knowlton). MARYLAND - Nymphs and adults abundant on ground, trees and about house in Silver Spring, Montgomery County. (U. Md., Ent. Dept.). DELAWARE - Adults leaving hib hibernation in New Castle County. (MacCreary).

ORIENTAL COCKROACH (Blatta orientalis) - UTAH - Infested a commercial building in Green River, Emery County. (Knowlton).

VARIED CARPET BEETLE (Anthrenus verbasci) - OREGON - Adult emergence reported by many homeowners in western localities of State. (Capizzi).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surnamensis) - MARYLAND - Adults found in flour and other products in home at Centreville, Queen Annes County. (U. Md., Ent. Dept., March 20).

CARPENTER ANTS (Campnotus spp.) - CALIFORNIA - Active during winter invading residences and annoying occupants, primarily by being confused with termites. Medium infestations occurred in several areas of Scaramento, Scramento County, and in Menlo Park, San Mateo County. Infestations were heavy in the attic of a club house in Pleasanton, Alameda County, and heavy in a house in Walnut Creek, Contra County. These ants are more prevalent this year than in past years and appear to be invading older homes. (Cal. Coop. Rpt.).

SUBTERRANEAN TERMITES - NEVADA - Winged forms of Reticulitermes hesperus swarming; several homes reported infested in Reno, Washoe County. (Bechtel, Ting).

OKLAHOMA - Reticulitermes sp. reported from locations in northwest, northeast, central and southwest parts of State. (Okla. Coop. Sur.). MARYLAND - Reproductives of unspecified species swarming in and about homes in Anne Arundel, Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). NEW JERSEY - Swarms of undetermined species becoming more abundant. (Ins.-Dis.-Weed Newsltr., March 27).

CLOVER MITE (Bryobia praetiosa) - NEW JERSEY - Few inquiries concerning these pests being received. (Ins.-Dis.-Weed Newsltr., March 27). MARYLAND - Entering homes in Charles and Prince Georges Counties. (U. Md., Ent. Dept.). UTAH - Entering some homes at Green River and Castle Dale, Emery County, and at Price, Carbon County. (Knowlton).

TROPICAL RAT MITE (Ornithonyssus bacoti) - CALIFORNIA - Found infesting bathroom of a residence in Sacramento, Scaramento County. This mite is being encountered more frequently in dwellings in the State. (Cal. Coop. Rpt.).

STORED-PRODUCT INSECTS

ALMOND MOTH (Ephestia cautella) - NEVADA - Several adults found in home in Winnemucca, Humboldt County. (Uriarte).

RED FLOUR BEETLE (Tribolium castaneum) - NEVADA - Light in dry dog food in veterinary establishment in Reno, Washoe County. (Bechtel).

YELLOW MEALWORM (Tenebrio molitor) - DELAWARE - Very heavy infestation, mostly full-grown larvae, present in feedhouse in southern New Castle County. (Burbutis).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - Several species continue to increase populations in alfalfa and wheat throughout State. (Okla. Coop. Sur.). ARKANSAS - Hippodamia convergens becoming active in small grain fields in east central area. (Ark. Ins. Sur.).

GREEN LACEWINGS (Chrysopa spp.) - OKLAHOMA - Limited numbers observed in alfalfa and wheat in State. (Okla. Coop. Sur.).

PARASITIC HYMENOPTERONS - ARKANSAS - Increasing in small grain fields in east central area. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - CALIFORNIA - Additional soil treatment begun March 26 in approximately 100 city blocks in known infested area in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

A CHAFER (Cyclocephala longula) - WASHINGTON - Recovered from blacklight trap during summer of 1961 at Pasco, Franklin County. This may be a new State record. Det. by O. L. Cartwright. (Powell).

A SCARAB (Phyllophaga latifrons) - FLORIDA - Collected in Japanese beetle trap at International Airport, Miami, Dade County, on March 14. (Stephen, McMillan).

A COREID BUG (Leptoglossus ashmeadi) - FLORIDA - Collected in Lake County on March 22. This is the third specimen for the Florida State Collection. (Felshaw).

CLUSTER FLY (Pollenia rudis) - UTAH - Active out-of-doors at Ogden and Huntsville, Weber County. (Knowlton).

A SLUG (*Arion ater*) - CALIFORNIA - Very light infestation found on soil in a nursery and on outlying property in Smith River, Del Norte County. This is the second location this slug has been found in Del Norte County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 12(11):229 - CELERY LEAF TIER (*Udea rubigalis*) reported from Kern and Kings Counties, CALIFORNIA. Recent information developed by California Department of Agriculture has now determined that previous records of *U. rubigalis* have been confused with *U. profundalis*. *U. rubigalis* occurs in the area south of the Tehachapi Mountains and *U. profundalis* north of this range. (Cal. Coop. Rpt.).

CEIR 12(13):288 - Delete correction for CEIR 10 Index:19; this is in error. *Aphytis proclia* is an *eulophid* parasite, as carried in index for Volume 10.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Feltia subter.	Spod. exigua	Trich. ni	Helio. zea
ARIZONA								
Mesa 3/21-28			27	6	67	69	4	
ARKANSAS								
Kelso 3/22-28	2	2	21					
FLORIDA								
Quincy 3/26		1			6			2
Gainesville 3/22	1	1		1	9			
SOUTH CAROLINA								
Clemson 3/17-23	2	1	1	2				
Charleston 3/26-4/1	17	4	1	2	6			1
TENNESSEE (Counties)								
Madison 3/20-26	3	3						
Cumberland 3/20-26		1						
Greene 3/20-26	1	2		1				

Additional Light Trap Collections: WISCONSIN:Middleton (3/26-28) - SPRING CANKERWORM (*Paleacrita vernata*) - 11; NOCTUIDS (*Lithophane laticinerea*) - 13, and (*Eupsilia morrisoni*) - 2.

ADDITIONAL NOTES

NEW YORK - Heavy adult flights of LINDEN LOOPER (*Erannis tiliaria*) occurred in the Albany area of the Hudson Valley and part of Long Island during November 1961, and heavy male flights of FALL CANKERWORM (*Alsophila pometaria*) occurred in the State during December. Cankerworms are expected to be troublesome this year in the State. Linden looper, along with fall cankerworm and SPRING CANKERWORM (*Paleacrita vernata*), occur together during mid-May on deciduous shade trees. PINE NEEDLE SCALE (*Phenacaspis pinifoliae*) is especially severe this year throughout New York. Control measures will be essential in most areas. (N. Y. Wkly. Rpt., Apr. 2).

SUMMARY OF INSECT CONDITIONS - 1961

(Continued from page 274)

ORNAMENTAL AND SHADE TREE INSECTS

Ornamental Insects

Highlights: BAGWORM was common on various evergreens and other ornamental hosts during the 1961 season. Infestations were more severe in Arkansas than in 1960, especially in the Ozark foothills, and were heavy in central and southern Missouri, but less numerous in Kansas. Damage was severe in southern Illinois, but populations were less abundant in Indiana and Ohio this year. EUROPEAN PINE SHOOT MOTH infestations were found in 5 nurseries at 3 different locations in Oregon this season, but all hosts were destroyed or disposed of, and no known infestations now occur in the State. Eradication of the pest was virtually completed in the Spokane area of Washington, but collections were made for the first time in 6 other counties in the State during 1961. The pest was also recorded for the first time in Kansas. JAPANESE BEETLE was abundant in New Jersey, very abundant in Pennsylvania, and appeared to be higher than in previous years in the northern part of New Castle County, Delaware. Adult infestations of this scarab were above normal in all areas of Maryland this year and were of concern also in Virginia. SCALE INSECTS were of considerable concern during 1961, with infestations and damage being reported on a wide variety of ornamentals from several of the states. APHIDS also caused much concern and were damaging in some areas of the Nation during the season. SPIDER MITES were troublesome and damaging in several parts of the country, with severe damage reported in many areas. MITES in general were damaging in California and infested a variety of plants in Virginia this season, and GRAY GARDEN SLUG continued damaging this year in the Willamette Valley of Oregon.

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BAGWORM (*Thyridopteryx ephemeraeformis*) commonly attacked evergreens and other ornamental trees in TEXAS during 1961. Early instars were noted on evergreens in the central area of OKLAHOMA by mid-May and, by mid-July, infestations were becoming more noticeable in many areas of the State. Heavy to severe damage was common on arborvitae and juniper, the most common hosts this year. Damaging numbers of the pest on untreated evergreens continued to be reported in Oklahoma into late August. Bagworm infestations were more severe in ARKANSAS during 1961 than in 1960, especially in the Ozark foothills, and heavy infestations were present in central and southern areas of MISSOURI this season. The pest was less numerous in KANSAS during 1961, but nurserymen were still plagued by late larval populations in July and August. Bagworm severely damaged many evergreens in the southern two-thirds of ILLINOIS, and hatch was about 2 weeks later than normal in 1961, occurring in the central area of the State about June 10-15. The pest was also abundant on sycamore, locust and other ornamentals in Illinois this season. Populations in INDIANA, although still evident on both deciduous and evergreen trees and on shrubs during 1961, were not as abundant as during the past several seasons, and the pest was apparently less abundant in OHIO during 1961 than during 1960.

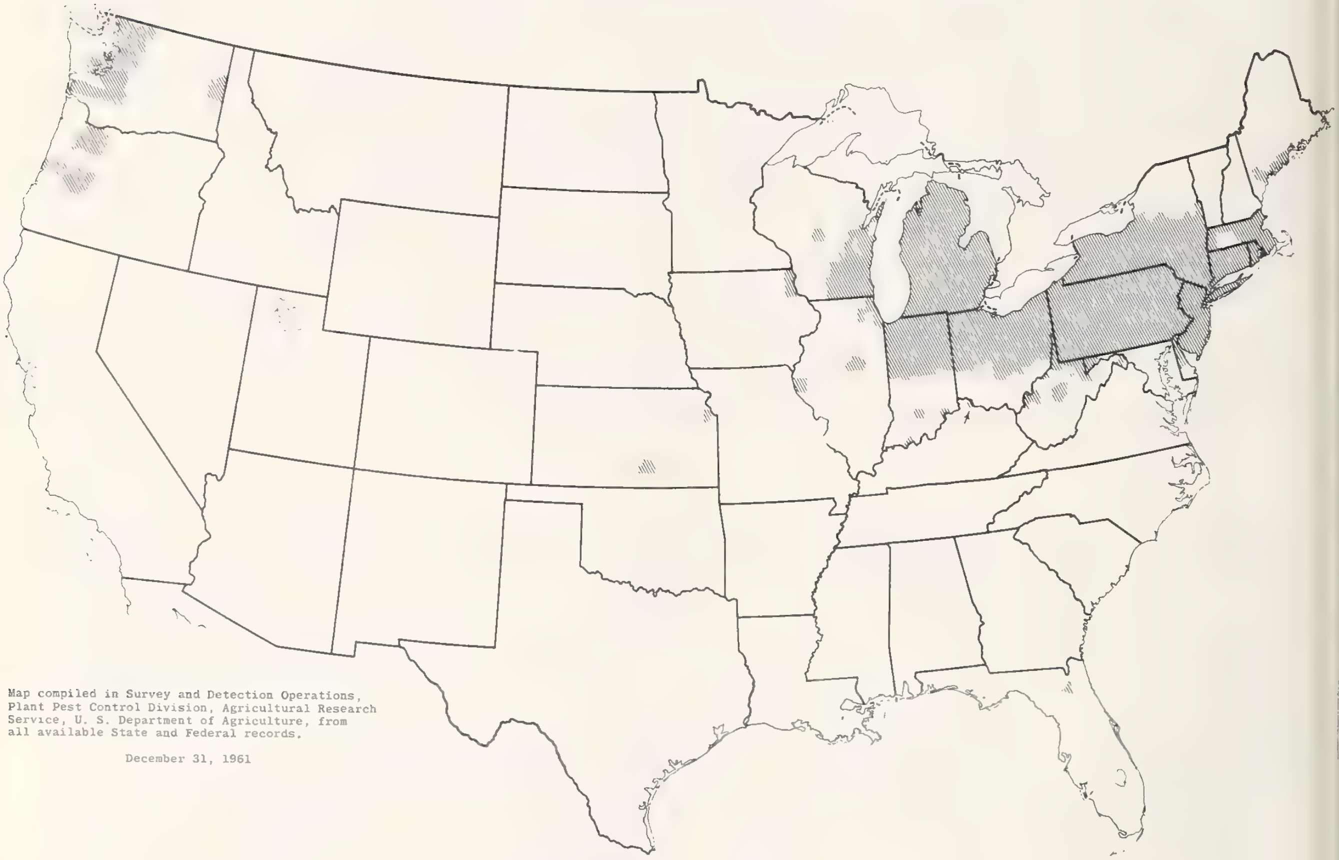
Injury by bagworm to arborvitae and other ornamental plants and shade trees was widespread throughout NEW JERSEY during the 1961 season as is usual. Very young larvae were first encountered on June 12 in Sussex County, DELAWARE, on sycamore and oak. Infestations in the northern portion of the county were severe and feeding injury on pine, cedar, oak and sycamore was very heavy by late July and early August. Bagworm infestations on arborvitae, juniper and other hosts were severe in many sections of MARYLAND this season and the pest infested conifers throughout VIRGINIA. Infestations of bagworm were light to heavy and general throughout GEORGIA on arborvitae during the 1961 season.

Another PSYCHID (Apterona crenulella) moderately attacked the foliage of ornamentals and fruit trees about homes in the northern areas of UTAH this season.

Infestations of ARBORVITAE LEAF MINER (Argyresthia thuiella) were present in 94 nurseries in OHIO during the 1961 season, of which 86 occurred in the northeastern part of the State; and this leaf miner was more prevalent on juniper in VERMONT during 1961 than usual. Another LEAF MINER (Argyresthia freyella) infested juniper in Pawtucket, Providence County, and arborvitae in Kingston, Washington County, RHODE ISLAND.

Map of European Pine Shoot Moth

(Confirmed Records of European Pine Shoot Moth)



Map compiled in Survey and Detection Operations, Plant Pest Control Division, Agricultural Research Service, U. S. Department of Agriculture, from all available State and Federal records.

December 31, 1961

Surveys for EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) during 1961 in OREGON, including intensive checks in all major channels of nursery stock distribution, revealed infestations in 3 nurseries in Portland, one nursery in Salem and one nursery in Eugene. The time interval between shipment of infested pines to the Eugene nursery and interception would not have permitted an adult flight in Oregon. All host pines at the Portland and Eugene locations were destroyed, and all pines at the Salem nursery were disposed of by burning or other means. A total of 19 trees on 8 privately owned properties within the metropolitan area of Portland was found infested and destroyed. No known infestations were known to occur in Oregon at the end of the year. State forestry inspectors spent 628 man-days on this survey. Other State and Federal personnel contributed considerable time on nursery and house-by-house inspections. Quarantine laws in Oregon have been strengthened and increased surveys for European pine shoot moth will be undertaken during the spring of 1962.

Eradication of European pine shoot moth was virtually completed in the Spokane area of WASHINGTON during 1961, but the pest was collected for the first time in Pacific, Lewis, Whatcom, Skagit, Snohomish and Kitsap Counties during the season. European pine shoot moth occurred in 20 nurseries in WISCONSIN during the 1961 season as compared with 19 during 1960, and most infestations were found in southeast and east central portions of the State. Emergence of this important nursery pest began about mid-June in the southeast counties of Wisconsin. European pine shoot moth continued to be serious in pine plantations throughout northern INDIANA during 1961. As larvae were found in buds of Scotch pine in Jefferson and Spencer Counties during the 1961 season, the pest is now recorded along all 4 borders of Indiana. European pine shoot moth was recorded for the first time in KANSAS during the 1961 season, with the discovery of established nursery infestations in Sedgwick and Leavenworth Counties.

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) incidence increased in nursery stock in WISCONSIN during 1961. This pest possibly attacks pines previously injured by European pine shoot moth and was noted primarily in the same general vicinity as this latter pest. Zimmerman pine moth was the most noticeably abundant pest in MICHIGAN, in comparison with other years, on Christmastree plantings of Scotch pine and other pines. The possibility that the "shearing" practiced by growers to bring about symmetry appeared to be a contributory factor. Injury by this pest to plantings in Michigan was noticeable in the Holland area of Ottawa County and the St. Charles area of Saginaw County this season. In INDIANA, Zimmerman pine moth was found for the first time in La Porte, Fulton and Marion Counties during the 1961 season. This species is a severe pest of pines grown in plantations in Indiana and applied control in the form of spraying and sanitation is indicated.

LEAF CRUMPLER (Acrobasis indiginella) was occasionally damaging to pyracantha locally in VIRGINIA during the 1961 season. AZALEA LEAF MINER (Gracilaria azaleella) infestations were reported in 25 nurseries in OHIO, of which 24 occurred in 2 northeastern lake counties. LILAC LEAF MINER (G. syringella) was abundant on lilac in VERMONT and infestations of the pest were heavy on lilac shrubs in the northeastern portion of COLORADO during the 1961 season. BOXELDER LEAF ROLLER (G. negundella) again heavily damaged boxelder in Elko County, NEVADA, during August and September. A BOXELDER LEAF ROLLER (Archips negundanus) caused scattered local damage in UTAH this past season, and an undetermined species of LEAF ROLLER infested lilac in the northeastern part of COLORADO. Platynota stultana caused serious damage to carnations in greenhouses at Las Cruces, Dona Ana County, NEW MEXICO, and Archips sp. infested pyracantha in Brazos County, TEXAS, this year. Tortrix pallorana appeared to be an established serious problem in young Christmastree plantings in INDIANA, with a 3-year-old Christmastree planting in Fulton County having an average infestation of 36 percent in early June.

A heavy larval population of PAINTED BEAUTY (Vanessa virginiensis) severely damaged fields of peonies in Jasper County, MISSOURI, during mid-April, and considerable numbers of a NYMPHALID (Euptoieta claudia) fed on pansy plants in a commercial planting in Huntingdon County, PENNSYLVANIA, but no serious damage was evident. Local, spotted infestations of another NYMPHALID (Agraulis vanillae) were more numerous on passionvines in CALIFORNIA this year. JUNIPER WEBWORM (Dichomeris marginella) damaged ornamental juniper on numerous occasions in OREGON this season from Portland, Multnomah County, to Eugene, Lane County; and the pest caused occasional local damage to juniper in VIRGINIA. LILAC BORER (Podosesia syringae syringae) seriously injured lilacs locally in Prince Georges County, MARYLAND, during the summer and infested lilac shrubs in northeastern COLORADO this season. A COSMOPTERYGID (Periploca n. sp.), which is now widespread in CALIFORNIA, seriously damaged prostrate junipers in the State by causing loss of terminals or complete kill.

An undetermined species of PLUME MOTH, which is a relatively new pest in MAINE, caused light damage to geranium blossoms in the Kennebunk area of York County in that State during late May. RED-HUMPED CATERPILLAR (Schizura concinna) defoliated many ornamental crabapple trees in VERMONT during late summer and was present on a few ornamentals and yard trees in northern CALIFORNIA during 1961. Also in California, a PYRAUSTID (Nomophila noctuella) damaged dichondra lawns in a few locations in the State.

Several species of Coleoptera were reported troublesome on ornamentals during the 1961 season. First specimens of JAPANESE BEETLE (Popillia japonica) were observed in MAINE on July 18 in the Portland area of Cumberland County, and light populations caused light damage to roses in the Auburn area of Androscoggin County in early August. Larvae damaged turf on several golf courses in VERMONT, and adult numbers were about normal on ornamentals in CONNECTICUT during the 1961 season, but were abundant in local areas. Japanese beetle adults were abundant and damaged roses in NEW JERSEY and were very abundant during the 1961 season in PENNSYLVANIA, where they persisted into October. First Japanese beetle adults of the season in DELAWARE were noted in New Castle County on June 22, and the population appeared higher in the northern part of that county than in previous years. Extensive feeding in this area of Delaware was observed on a large variety of host plants, especially roses, linden, birch, spruce, black cherry, sycamore, maple and oak. Adults were first noted in MARYLAND on June 23 at College Park, Prince Georges County, and adult infestations in all sections of the State were above normal on favored ornamental host plants during late June and July. Japanese beetle caused considerable concern throughout VIRGINIA during the summer of 1961, with adults feeding on a variety of forest and ornamental plants and being particularly heavy in the southwestern part of the State. Infestations of Japanese beetle were recorded in 41 nurseries in OHIO during 1961, compared with 29 nursery infestations during 1960. However, all infestations were within the quarantined area of the State.

Moderate to heavy populations of ROSE CHAFER (Macrodactylus subspinosus) in MAINE caused moderate to severe damage to ornamentals and flowering plants in home gardens and cemetery plantings in areas of Farmington, Franklin County, and Norway, Oxford County, during late June, and heavy populations caused severe damage to many plant species in the Portland area of Cumberland County during mid-July. Rose chafer was exceptionally active in VERMONT this season with defoliation of many ornamentals, and adults were unusually abundant in most areas of RHODE ISLAND during the last half of June.

A teneral adult of a CUBAN MAY BEETLE (Phyllophaga bruneri) was found February 21, 1961, at Miami, FLORIDA, which is nearly 2 months earlier than adults were found during 1960. At the peak of emergence in May, over 3,000 specimens were collected during a single night in one trap. It appears that the infestation is gradually expanding, but is still confined to the greater Miami area of Dade County. A total of 10 new adult host plants was recorded during the 1961 season and the last adult of the season was taken on December 31.

ASIATIC OAK WEEVIL (Cyrtepistomus castaneus) was quite abundant in the southern half of PENNSYLVANIA during 1961, occurring on ornamental oaks and in nurseries, as well as migrating into homes on numerous occasions. In MARYLAND, adults of HOLLYHOCK WEEVIL (Apion longirostre) were abundant on hollyhocks at Hanover, Howard County, and in VIRGINIA, FULLER ROSE BEETLE (Pantomorus godmani) was occasionally damaging to roses locally in the State during the year. Also in Virginia, a JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) defoliated camellias in Richmond and azaleas and lilacs at Gloucester Point, Gloucester County. Adults of this weevil were rather abundant, causing heavy injury to several ornamentals, particularly lilac, in areas of New Castle County, DELAWARE, during late July. This weevil also infested lilac, rose, azalea and ivy in the Philadelphia area of PENNSYLVANIA this past season. High adult populations of ROSE CURCULIO (Rhynchites bicolor) damaged untreated roses in the Fargo area of Cass County, NORTH DAKOTA. Rose curculio was also damaging to roses in UTAH during the 1961 season and was scatteringly abundant on roses in many areas of IDAHO.

BLACK VINE WEEVIL (*Brachyrhinus sulcatus*) was very troublesome in RHODE ISLAND during the 1961 season. Pupae were observed in Middletown, Newport County, on June 15, and a heavy emergence of adults occurred the following week in Newport, Johnston and Kingston. Larvae infested a greenhouse in Newport on June 29. Also in Rhode Island, larvae of STRAWBERRY ROOT WEEVIL (*B. ovatus*) were troublesome in nurseries in the Warwick area of Kent County in early July. Strawberry root weevil, black vine weevil and *B. rugosostriatus* were occasionally damaging to roses in northern UTAH this season; and *B. cribricollis* heavily damaged various ornamentals in Clark County, NEVADA. In CALIFORNIA, infestations of *B. cribricollis* occurred in spruce tree areas in Eureka, Humboldt County, and on nursery shrubs in a few locations in the State, as well as dichondra lawns in San Diego, San Diego County. This weevil was more prevalent in California during 1961 than in several years.

A WEEVIL (*Gymnaetron tetrum*) was found infesting moth mullein (*Verbascum blattaria*) in Logan, Cache County, UTAH, during December 1960, and was reported during the 1961 season as a new State record for this pest. Determination was made by R. E. Warner. However, no established infestation is now known to be present in Utah, as all the plants and infested seed pods were destroyed.

Unusually high numbers of SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) were observed during the fall in DELAWARE feeding on a variety of ornamentals, especially buds and blossoms of roses and chrysanthemums. Two LEAF BEETLES were reported from PENNSYLVANIA for the first time during the 1961 season. *Cassida rubiginosa* was collected on Canada thistle in Montgomery County and *Chlamisus comptoniae* was found on sweetfern (*Comptonia peregrina*) in Dauphin County. Another LEAF BEETLE (*Rhabdopterus bowditchi*), which had been seldom collected in FLORIDA during previous years, was unusually abundant at Miami, Dade County, from January through March, feeding at night on lychee, surinamcherry, cattleya guava, mango, jaboticaba and longan. Adults of ARGUS TORTOISE BEETLE (*Chelymorpha cassidea*) were very abundant, feeding on morningglory in the Billings area of Yellowstone County, MONTANA, this season. THREE-LINED POTATO BEETLE (*Lema trilineata*) was more abundant this year in CALIFORNIA than for several years on wild hosts, primarily Jimpsonweed, and also damaged a variety of ornamental vine ("cup-of-gold") in local areas. An undetermined species of LEAF BEETLE severely damaged willows in the vicinity of Manley Hot Springs, ALASKA, during the 1961 season.

A BARK BEETLE (*Phloeosinus canadensis*) was collected for the first time in OHIO at Columbus, Franklin County, on August 18, 1961. The infestation was heavy and damage to *Thuja occidentalis* was noticeable. Another BARK BEETLE (*P. dentatus*) was collected at Devola, Washington County, during August 1960 on *Juniperus* sp. Both determinations were made by D. M. Anderson and both constitute new State records for Ohio. BLACK BLISTER BEETLE (*Epicauta pennsylvanica*) damaged gladiolus in northwestern PENNSYLVANIA during the 1961 season. Undetermined species of BLISTER BEETLES severely defoliated caragana and honeysuckle over a wide area of NORTH DAKOTA during the season, and were more prevalent than usual in CALIFORNIA, with controls being required in many gardens and on many shrubs in the most northern counties of the State. Undetermined FLATHEADED BORERS infested several ornamental cherry trees in Elmos, Lake County, MONTANA, in 1961; and unusually heavy populations of a NITIDULID (*Conotelus mexicanus*) damaged blossoms of flowers in gardens throughout southern counties of NEW MEXICO where they were especially bad on roses and chrysanthemums.

SCALE INSECTS were of considerable concern during the 1961 season, with infestations and damage being reported on a wide variety of ornamentals from several of the states. OYSTERSHELL SCALE (*Lepidosaphes ulmi*) was abundant on lilac in VERMONT; was prevalent on lilac and other ornamental trees and shrubs in NEW JERSEY; and infestations on lilac were of major concern in MARYLAND. Oystershell scale and CAMELLIA SCALE (*L. camelliae*) were two of the more commonly reported species during the 1961 season in VIRGINIA. Oystershell scale was one of the important pests of nursery stock in WISCONSIN during 1961 and crawlers were noted on lilac in Dane County the last week of June. The brown race of this pest was heavy on redbud trees in the Lafayette area of Tippecanoe County, INDIANA, this season. Oystershell scale caused heavy damage to ornamentals during the year in WYOMING but, when properly applied, controls were generally effective. Infestations occurred on lilac in the northeastern portion of COLORADO, and were also reported on ornamentals from other areas of the State. The pest was frequently injurious to lilac in UTAH, and infestations were present on a few ornamentals in the northern part of CALIFORNIA.

SAN JOSE SCALE (*Aspidiotus perniciosus*) infestations on ornamental *Prunus* spp. caused major concern during 1961 in MARYLAND, and the pest was one of the most commonly reported scale insects in VIRGINIA during the year. Extremely heavy infestations of San Jose scale encrusted leaves and branches of pyracantha and ornamental plum in the central area of MISSOURI. The pest also occurred on many ornamental *Prunus* spp. and a few related hosts in CALIFORNIA to varying degrees. PUTNAM SCALE (*Aspidiotus ancylus*) was first found in WYOMING during 1960 and, although control efforts were not 100 percent effective, no new infestations have been found since the original discovery. This pest did infest ornamental apple in Denver, COLORADO, during the 1961 season.

Several other ARMORED SCALES were also reported from ornamentals in CALIFORNIA. OLEANDER SCALE (*Aspidiotus hederae*) is of statewide occurrence, but is not particularly damaging to its many hosts, although heavy populations do cause plants to become unsightly. Spotted, local infestations of CALIFORNIA RED SCALE (*Aonidiella aurantii*) occur throughout the State, with ornamental shrubs and roses being infested. Parasites often build up in these reservoir populations which are not treated, but this materially aids biological control. OLIVE SCALE (*Parlatoria oleae*) has been a serious pest of ornamentals as well as commercial plantings in the San Joaquin Valley of California for many years. The species is now widespread but very local, and eradicative measures have been applied in many communities. Biological control is quite effective and the release of parasites has resulted in these beneficial insects becoming established in many of the olive scale infestations which were previously uncontrolled. Local infestations of CHAFF SCALE (*Parlatoria pergandii*) occurred on ornamentals in a few areas of southern California during 1961; and ITALIAN PEAR SCALE (*Epidiaspis piricola*) was medium on Christmasberry (*Photinia arbutifolia*) in Vallejo, Sonoma County, and was present locally in Santa Cruz County. Medium populations of *Diaspis boisduvalii*, which required considerable treatment, developed on cymbidiums in coastal Santa Barbara County this season.

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) was reported more often during 1961 than in previous years in VIRGINIA, being common on such ornamentals as mulberry, lilac, candytuft, umbrella-tree, Japanese holly, privet, cherry, peach, catalpa, honeylocust, weeping willow, pyracantha and laurel. Infestations of this species on ornamental cherry and mulberry were also of major concern in MARYLAND this season, as were infestations of *Leucaspis japonica* on privet, quince, holly and rose. JUNIPER SCALE (*Diaspis carueli*) crawlers were evident on juniper in the Warwick area of Kent County, RHODE ISLAND, on July 6, and this scale was another of the more commonly reported species in VIRGINIA during 1961. Of a total of 81 nursery infestations of juniper scale reported in OHIO during the season, 64 were reported from the northeastern part of the State. Also in Ohio, infestation of sweetgum by *Aspidiotus liquidambaris* was severe in a nursery in North Royalton, Cuyahoga County, during August. Populations of EUONYMUS SCALE (*Unaspis euonymi*) in NEW MEXICO were very heavy on euonymus in the Albuquerque area of Bernalillo County and in Lea County during the late summer and fall, with effective control difficult; and the pest was common on euonymus throughout TEXAS during the season. Euonymus scale was one of the more common species reported in VIRGINIA during 1961, and infestations on euonymus, bittersweet and pachysandra were of major concern in MARYLAND during the year. Both generations of euonymus scale were abundant on euonymus and pachysandra in NEW JERSEY, and the pest was very common and abundant during the year in CONNECTICUT.

Light to moderate infestations of AZALEA BARK SCALE (Eriococcus azaleae) were present on azalea in the east central area of MISSOURI during mid-April and adult females with unhatched eggs were noted on azalea in a nursery in the Cumberland area of Providence County, RHODE ISLAND, on June 13. A PIT SCALE (Asterolecanium arabidis) was a nursery pest of Pittosporum tobira in CALIFORNIA, as well as occurring on a wide range of native plants in the State.

Adult FLETCHER SCALE (Lecanium fletcheri) females with unhatched ova were noted in a nursery in the Cranston area of Providence County, RHODE ISLAND, on May 31, and eggs were hatching the following week throughout the State. Relatively large numbers of this pest occurred on Taxus spp. and arborvitae in the southern part of OHIO and, of a total of 117 nurseries infested during the 1961 season, 80 were in the northeastern portion of the State. Fletcher scale was also severe on yew and arborvitae during 1961 in MINNESOTA. EUROPEAN FRUIT LECANIUM (Lecanium corni) again damaged roses at Vernal, Uintah County, UTAH; and very local infestations of another COCCID (Lecanium kunoensis) were present on pyracantha in Chico and Paradise, Butte County, CALIFORNIA. Scattered but severe infestations of MAGNOLIA SCALE (Neolecanium cornuparvum) occurred on magnolia in OHIO and the pest was of major concern on magnolia in MARYLAND during the 1961 season. Also of major concern in Maryland, was a WAX SCALE (Ceroplastes sp.) on holly.

RED WAX SCALE (Ceroplastes rubens) was found in FLORIDA on leaves of breadfruit (Artocarpus polyphemus) at a nursery in Miami, Dade County, on February 8 and 9, 1961. This species was thought to have been eradicated from the State and no specimens had been found since January 1958, when they were collected on Anthurium plants that had been imported. A quarantine was immediately placed in effect on the nursery in Miami and no subsequent finds have been made. BROWN SOFT SCALE (Coccus hesperidum) attacked various ornamental plants in the lower Rio Grande Valley of TEXAS during the 1961 season. In INDIANA, the seldom detected pest of spruce, SPRUCE BUD SCALE (Physokermes piceae), was unusually abundant at both Muncie, Delaware County, and at Valparaiso, Porter County, during 1961, and a PINE TORTOISE SCALE (Toumeyella pini) was found infesting a mugho pine in Madison County, for the first record of this species in the State. Eradicative treatment was applied to tuliptrees infested with TULIPTREE SCALE (Toumeyella lirodendri) in San Jose, Santa Clara County, CALIFORNIA, this season by the County Agricultural Department. As complete eradication was not obtained during 1961, the program is to be continued. Also in California, locally heavy infestations of a COCCID (Ehrhornia cupressi) developed on cypress in Stanislaus County. Another COCCID (Pulvinaria floccifera) was especially abundant in Multnomah County, OREGON, on June 22, with crawlers active on that date. This pest requires control wherever camellias are grown in the western portion of Oregon. Eggs of this coccid hatched on yew in Wakefield, Washington County, RHODE ISLAND, on July 10.

COTTONY-CUSHION SCALE (Icerya purchasi) was common on pittosporum in various areas of TEXAS during the 1961 season; and occurrence of the species is statewide in CALIFORNIA, usually in local, very spotted areas involving a single host. Such infestations in California provide populations which serve to keep colonies of vedalia (Rodolia cardinalis) active, which in turn keeps this margarodid in bounds. GRAPE MEALYBUG (Pseudococcus maritimus) continued to be a pest of Taxus spp. in nurseries in OHIO during 1961. MEALYBUGS were heavy on potted plants in many sections of VIRGINIA this season and several species attacked a wide variety of ornamental plants locally throughout TEXAS. A heavy, local population of Conchaspis angraeci attacking hibiscus in Brownsville, Cameron County, was the first record of this pest in Texas. Mealybugs were reported from scattered areas of CALIFORNIA this year, attacking ornamentals, ivy and many garden annuals; and ground mealybugs were a problem in many home gardens in the State. Stomacoccus platani was of general occurrence in California, with heavy populations developing in many locations.

APHIDS were of some concern during the 1961 season. One of these, COTTON APHID (*Aphis gossypii*), was troublesome to homeowners on althea in MARYLAND. SPIREA APHID (*Aphis spiraecola*) was abundant on new growth of spirea in Sussex County, DELAWARE, in May. This was a new State record for this species during the 1961 season. Spirea aphid was quite plentiful during the season in WISCONSIN; heavily infested spirea in Larimer, Weld, Adams, Boulder and Denver Counties, COLORADO; and populations were below normal during the year in UTAH, except in the spring. SNOWBALL APHID (*Anuraphis viburnicola*) was again generally abundant on snowball bushes throughout most of the southern part of IDAHO, and ROSE APHID (*Macrosiphum rosae*) was scatteringly abundant on roses in many areas of the State. Infestations of rose aphid on roses caused concern to homeowners in MARYLAND during the year and heavy populations developed on roses in the Narragansett area of Washington County, RHODE ISLAND, in mid-June. Also of concern in Maryland this season was TULIPTREE APHID (*Macrosiphum liriodendri*) on ornamental tuliptrees. BOXELDER APHID (*Periphyllus negundinis*) was sometimes extremely abundant during the spring in UTAH, especially in central and northern areas of the State. CHRYSANTHEMUM APHID (*Macrosiphoniella sanborni*) was medium locally on chrysanthemums in Butte County, CALIFORNIA, this season. Infestations of a JUNIPER APHID (*Cinara sabinae*) occurred on juniper during late June and the first 2 weeks of August, and on spruce, pine and juniper during September and October in Denver, Adams and Larimer Counties, COLORADO. Specimens of BLACK CITRUS APHID (*Toxoptera aurantii*) collected on English ivy at Centreville, Queen Annes County, MARYLAND, during August 1960, were reported during the 1961 season as a new State record. Determination was by L. M. Russell.

Undetermined species of APHIDS were troublesome on almost all ornamentals commonly grown in ALASKA during the 1961 season. BIRCH APHIDS (*Calaphis* spp.) apparently produced loss of leaves on a number of birches grown as ornamentals around homes, isolated specimens appearing to suffer more severely than those in wooded areas. Honeydew and soot fungus were also troublesome in Alaska this season, as a result of aphid infestations. A COLUMBINE APHID (*Aphis* sp.) was an important problem on delphiniums in most of the State, and undetermined species infested fuzzy prairie rose (*Rosa setigera tomentosa*). A SPRUCE GALL APHID (*Chermes* sp.) was widespread on white spruce, especially those used as specimens in yards. Heavy populations of various species of aphids caused considerable damage to ornamentals in CALIFORNIA during the 1961 season and the pests persisted for a long period of time. *Vesiculaphis caricis* became established on azalea in Tuolumne, Amador and Calaveras Counties, but infestations are limited and spotted. Heavy infestations of several species of aphids were a problem on various ornamentals statewide in ARIZONA from February through May. Populations of *Cinara tujafilina* were heavy on arborvitae in southern counties of NEW MEXICO during the spring and early summer and caused considerable concern by entering homes and other buildings. Several species attacked a wide variety of ornamental plants locally throughout TEXAS and light to heavy populations of several species occurred throughout the 1961 season on most flowers and ornamental plants in yards, greenhouses and nurseries throughout OKLAHOMA. Roses were infested by *Myzus* spp. and *Macrosiphum* spp. in several areas of COLORADO, with infestations of *Rhopalosiphum berberidis* also being reported. Aphids occasionally curled foliage of ornamental flowering hawthorn in UTAH, and various species, including POTATO APHID (*Macrosiphum euphorbiae*), were damaging to ornamentals and flowers during the spring of the year. In NEVADA, infestations of various aphids ranged light to heavy, statewide, on broadleaf and evergreen shrubs and trees and required extensive control measures. This group of pests is becoming increasingly numerous and injurious each year in Nevada. *Anuraphis helichrysi* was common on flowering plums throughout much of the southeastern portion of IDAHO during late June, and numerous, heavy infestations of various species of aphids occurred on shrubs and perennials over a wide area of NORTH DAKOTA during the 1961 season. Aphids were very abundant throughout VIRGINIA this year, with numerous reports concerning infestations on mulberry and chrysanthemum. In MARYLAND, infestations of *Prociphilus fraxinifolii* on ornamental ash were of concern to homeowners this past season.

Galls of EASTERN SPRUCE GALL APHID (Chermes abietis) became very abundant on spruce locally in the Woonsocket area of Providence County, RHODE ISLAND, during early August, and infestations were reported from 86 nurseries in OHIO during the 1961 season, with 78 of these infestations being in the northeastern section of that State.

COOLEY SPRUCE GALL APHID (Chermes cooleyi) was scattered throughout MONTANA on ornamental plantings during 1961, with heaviest infestations in the western part of the State. The pest caused normal damage to ornamental trees in UTAH, and damaging numbers were reported in the Denver area of COLORADO early in June. Cooley spruce gall aphid was quite prevalent on Douglas-firs during the 1961 season in WISCONSIN and was more abundant than usual during the year in OHIO, where many galls were reported on blue spruce in home plantings. Of the 73 nursery infestations recorded during 1961 in Ohio, 66 occurred in the northeast area. Newly formed galls of this pest were present in Warwick, Kent County, and Woonsocket, Providence County, RHODE ISLAND, during early June. Undetermined species of SPRUCE GALL APHIDS were less abundant during 1961 than during the 1960 season in CONNECTICUT. Infestations of PINE BARK APHID (Pineus strobi) on ornamental white pine caused concern to homeowners in MARYLAND during the year, and infestations of and damage by PHYLLOXERAS (Phylloxera spp.) were moderate in the Auburn area of Androscoggin County, MAINE.

BOXWOOD PSYLLID (Psylla buxi) adults and nymphs were moderate on boxwood in Wakefield, Washington County, RHODE ISLAND, in mid-June, and the pest heavily infested boxwood in many localities of VIRGINIA during the year. BOXELDER PSYLLID (P. negundinis) was moderate in UTAH during the 1961 season. HACKBERRY NIPPLE GALL (Pachypsylla celtidismamma) and P. celtidis-vesicula were present on leaves of hackberry throughout KANSAS during 1961.

Severe infestations of MULBERRY WHITEFLY (Tetraleurodes mori) occurred on azalea in Kingston, Washington County, RHODE ISLAND, during mid-August; and various species of WHITEFLIES were common in many greenhouses in CONNECTICUT during 1961.

FOUR-LINED PLANT BUG (Poecilocapsus lineatus) fed on weigelia in Middletown, Newport County, RHODE ISLAND, during mid-July; and TARNISHED PLANT BUG (Lygus lineolaris) caused considerable loss to commercial gladiolus plantings in PENNSYLVANIA by deforming flowers. A STINK BUG (Elasmostethus interstinctus) was common on poplars in Fairbanks, ALASKA; and large numbers of a GRASS BUG (Arhyssus scutatus) were a nuisance in yards and on shrubs in CALIFORNIA. HACKBERRY LACE BUG (Corythucha celtidis) was unusually abundant in many areas of INDIANA during 1961, with frequent requests for control measures during September. LACE BUGS (Stephanitis spp.) on azalea and rhododendron were abundant and injurious in all sections of MARYLAND during most of the summer, and unspecified species of these pests increased in abundance on Japanese andromeda during the 1961 season in CONNECTICUT.

ROSE LEAFHOPPER (Edwardsiana rosae) infested roses in several areas of COLORADO during 1961, and conspicuously discolored cultivated roses throughout UTAH, where it also commonly infested wild roses. This species also became numerous on spirea in Utah during the fall of the year in Salt Lake City, Ogden and Logan. Also in Utah, VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac), E. elegans and other species of leafhoppers caused moderate to average damage to Virginia-creeper foliage during the late summer and fall in many communities in the State, with leaves frequently brown before August; and various species of leafhoppers discolored foliage of pussywillow at Nephi, Juab County, and at Ogden, Weber County. Homalodisca liturata was a slight nuisance in home gardens in urban areas of San Diego County, CALIFORNIA; and H. coagulata infested crapemyrtle in several counties in the eastern half of TEXAS and in the south central area of the State. Several species of leafhoppers attacked a wide variety of ornamental plants locally throughout the State. In CONNECTICUT, a complex of leafhoppers was heavy on flowers during the 1961 season.

Emergence of NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) ended about mid-June in the South Kingstown area of Washington County, RHODE ISLAND, and the pest was troublesome in some counties of VIRGINIA during the 1961 season. Larval mines of HOLLY LEAF MINERS (Phytomyza spp.) were prevalent on American holly in central sections of MARYLAND during April, May and December; and several species of LEAF MINERS attacked a wide variety of ornamental plants locally throughout TEXAS during the season. Another LEAF MINER (Phytomyza crassiseta) was found for the first time in CALIFORNIA during 1961, infesting Veronica imperialis during October in Oxnard, Ventura County, and later in several southern counties infesting Veronica spp.

BOXWOOD LEAF MINER (Monarthropalpus buxi) heavily infested boxwood in many localities of VIRGINIA during the 1961 season. A GALL MIDGE (Oligotrophus sp.) has recently become a pest in nurseries in OHIO, particularly of Juniperus virginiana, and continued to be disclosed in new areas of the State during 1961. It was recorded in 51 nursery plantings during 1960 and was apparently equally abundant in Ohio during 1961. Undetermined GALL MIDGES caused inflated fruits on many chokeberry bushes over MONTANA during 1961. Also in Montana, DOUGLAS-FIR NEEDLE MIDGES, mostly Contarinia pseudotsugae, have been found throughout the Douglas-fir type in the State, and have caused the discontinuance of Christmastree cutting operations on Kootenai National Forest because of discoloration of foliage. In IDAHO, fruit of wild chokecherries was infested by Contarinia sp. along southwestern slopes of Thorn Creek in Boise County and in other southern areas of that State during the 1961 season. In UTAH, larvae of various species of gall midges again produced galls that damaged a large percentage of chokecherry fruits in Logan, Smithfield, Blacksmith Fork, Ogden, Provo, Mantua and Parleys Canyons.

FRIT FLY (Oscinella frit) infested lawns in several areas of CALIFORNIA this year; and several species of GALL-MAKING INSECTS attacked various ornamental plants in TEXAS during the season.

Several SAWFLIES were of some concern during the season. PLUM WEB-SPINNING SAWFLY (Neurotoma inconspicua) larvae infested flowering crabapple in a nursery in the Lincoln area of Providence County, RHODE ISLAND, during early June. WHITE-PINE SAWFLY (Neodiprion pinetum) defoliated white pines at Reynoldsburg, Franklin County, OHIO; and 2 infestations of a STEM SAWFLY (Janus bimaculatus) were recorded in the northern part of the State, one being severe. This latter species is a new nursery pest in Ohio and detection efforts should be increased to determine distribution. YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) occurred in the northeast district of MINNESOTA on ornamental spruce in Carlton and St. Louis Counties. ROSE-SLUG (Endelomyia aethiops) caused occasional local damage to roses in VIRGINIA during the 1961 season, was damaging to roses in UTAH, and was abundant but scattered on roses in many areas of IDAHO this season. A HONEYSUCKLE SAWFLY (Zaraea americana) caused heavy feeding injury to honeysuckle in the Alturas and Cedarville areas of Modoc County, CALIFORNIA.

Infestations of TEXAS LEAF-CUTTING ANT (Atta texana) occurred in several southeastern counties of TEXAS during the 1961 season.

Populations of CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) ranged medium to heavy on Ficus retusa in San Diego and Los Angeles Counties, CALIFORNIA, the Los Angeles infestation spreading rapidly over that county this year. Rubbertrees are used extensively in landscaping in the southern portion of California and this thrips is very damaging to new growth on these host plants. THRIPS generally were particularly abundant in California during 1961, with populations ranging medium to heavy on native shrubs. Christmasberry and madrone trees were damaged and many ornamental shrubs became unsightly by midsummer. Frankliniella occidentalis was responsible for some damage in the cut-flower industry in California this year. Various species of thrips damaged roses in UTAH this season, but GLADIOLUS THRIPS (Taeniothrips simplex) caused below-normal damage in the State during 1961, while undetermined species of thrips were again very abundant in most cultivated and wildflower blossoms in Utah.

Undetermined species of GRASSHOPPERS defoliated peonies at Esmond, Benson County, NORTH DAKOTA; and caused occasional damage to ornamental trees and other ornamentals in areas of CALIFORNIA, where populations were active, as well as causing some defoliation in the latter State. Also in California, EUROPEAN EARWIG (Forficula auricularia) caused light to heavy, spotted damage in many locations from San Joaquin County northward. Ornamental trees and shrubs were damaged in California and the pest was particularly serious in flower gardens. European earwig caused usual widespread annoyance and moderate damage to ornamentals about homes and in gardens over UTAH during the 1961 season; and was also reported damaging and annoying in COLORADO during the season. SPRINGTAILS were common on house plants over CONNECTICUT during the 1961 season.

SPIDER MITES were troublesome and damaging in several areas of the Nation during the 1961 season, with damage being severe in many of these areas. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was common on spruce in the Anchorage and Fairbanks areas of ALASKA this season. This mite severely damaged ornamentals and annuals in CALIFORNIA, causing complete defoliation of untreated hosts in many areas, and was more severe this year in the State than for several years. Two-spotted spider mite damaged roses in UTAH and infested various ornamentals in COLORADO such as boxelder, Oregonholly, currant, cherry, peach, privet, cotoneaster and turf during the season, with infestations also being reported on roses in several areas of the State. Two-spotted spider mite was prevalent throughout WYOMING on most ornamentals, as usual, and damage was severe in many cases and cost of control was high. Heavy populations of this mite attacking perennial plants, roses and evergreen foundation plantings were common in many sections of NORTH DAKOTA during the 1961 season.

Two-spotted spider mite continued as a common pest in nurseries and on ornamental plantings in OHIO during the 1961 season. This species and other spider mites were damaging to florist crops and to field ornamentals and nursery stock in NEW JERSEY, but populations in the field did not become sizeable until late July and August. Two-spotted spider mite was abundant locally on Taxus plantings in CONNECTICUT during the year; and moderate populations of the pest caused light damage in greenhouses in the South Portland area of Cumberland County, MAINE, during late July.

SOUTHERN RED MITE (Oligonychus ilicis) on holly, and SPRUCE SPIDER MITE (O. ununguis) on spruce, hemlock and other conifers were again troublesome in MARYLAND during the 1961 season. Infestations of spruce spider mite were heavy on spruce in Pawtucket, Providence County, RHODE ISLAND, during July, and the mite continued to be a common pest in nurseries and on ornamental plantings in OHIO this season. Heavy populations of spruce spider mite attacking evergreen foundation plantings were common in many sections of NORTH DAKOTA during 1961; and heavy infestations of EUROPEAN RED MITE (Panonychus ulmi) developed on ornamental Prunus spp., miscellaneous shrubs and annuals in CALIFORNIA.

Various other species of spider mites were also of some concern during the 1961 season. Eotetranychus lewisi infested a large number of poinsettia cuttings imported into OREGON in the fall for the 1961 holiday season. Eotetranychus libocedri heavily infested Pfitzer juniper in several locations of CALIFORNIA; and E. lewisi has become a serious pest of commercial poinsettias in the coastal area of San Diego County and on yard plantings in many locations in California. Medium populations of E. lewisi also developed on ornamental Ulmus sp. locally in Los Angeles County; and heavy populations of Schizotetranychus celarius developed on bamboo in San Diego County and in San Francisco, San Francisco County, California.

Populations of spider mites varied light to heavy statewide in NEVADA during the 1961 season on broadleaf and evergreen shrubs and trees, requiring extensive control measures. This group of pests is becoming increasingly more numerous and injurious each year in this State. Medium to heavy infestations of several species of spider mites occurred on various ornamental plantings throughout the summer and fall in *ARIZONA*; and the pests were a problem on junipers and other ornamentals in most sections of *NEW MEXICO* during 1961. Several species attacked a wide variety of ornamental plants locally throughout *TEXAS* and, by mid-May, infestations of *Tetranychus* spp. were becoming common on ornamental shrubs in many areas of *OKLAHOMA*, with moderate to heavy infestations continuing on a wide variety of flowers, shrubs and trees throughout the summer in that State. *Tetranychus* spp. were numerous on spruce in *WISCONSIN* during 1961, and various species of spider mites were again troublesome on many ornamentals during the year in *MARYLAND*.

Heavy populations of PRIVET MITE (*Brevipalpus obovatus*) developed in Oroville, Butte County, *CALIFORNIA*, and scattered infestations of this pest occurred in other locations, primarily in northern California.

Infestations of TIP-DWARF MITE (*Eriophyes thujae*) were reported in 63 nurseries in *OHIO* during the 1961 season; 59 of these nurseries were in the western half of the State, particularly in central and west central Ohio. Heavy populations of this eriophyid were reported during September on oriental arborvitae in the central part of the State. Also in Ohio, infestations of an AZALEA MITE (*Vasates atlantazaleae*) were reported in 39 nurseries out of a total of 43, predominantly in the northeastern area of the State. A PRIVET MITE (*Aculus* sp.) caused noticeable injury to privet foliage in Prince Georges County, *MARYLAND*, this year. CYCLAMEN MITE (*Steneotarsonemus pallidus*) was common on Africanviolets in *CONNECTICUT* during the 1961 season, and light to medium infestations were reported on aralia and Africanviolets in *CALIFORNIA*.

MITES in general were damaging in *CALIFORNIA* during 1961, being active for most of the year, and populations of these pests damaged cymbidiums during May in coastal Santa Barbara County. Weather during June in California remained at high daytime temperatures, with occasional drying winds. Severe mite damage resulted in defoliation and killing of many shrubs and annuals, with as many as 3-5 species of mites occurring on a single host. Various species of mites also infested a wide variety of plants throughout *VIRGINIA* during the 1961 season.

GRAY GARDEN SLUG (*Deroceras reticulatum*) continued to cause damage in nurseries and home gardens in the Willamette Valley of *OREGON* during 1961; and various slugs, particularly *Arion ater*, commonly damaged nursery stock in nurseries in the western part of the State during the year.

Shade Tree Insects

Highlights: FALL WEBWORM was unusually abundant in Washington, and second-generation infestations were more severe than those of first generation in New Mexico. This pest was common in eastern Texas and infestations were heavier than usual in Arkansas. Fall webworm was conspicuous in Virginia and unusually prevalent over New Hampshire. MIMOSA WEBWORM was damaging in New Jersey, Pennsylvania, Maryland, Virginia, Georgia and Illinois, as were CANKERWORMS in Colorado, North Dakota, Minnesota, New Jersey and Rhode Island. Several species of TENT CATERPILLARS were damaging in various areas during the 1961 season. ELM LEAF BEETLE infestations ranged light to heavy over the Nation during 1961, damage being severe in some areas; and several other LEAF BEETLES were troublesome on various hosts. SMALLER EUROPEAN ELM BARK BEETLE was first reported from Minnesota and in Mineral and Douglas Counties, Nevada, during the past season. This beetle continued to spread Dutch elm disease in Indiana and, in combination with NATIVE ELM BARK BEETLE, continued the spread of the disease in New Jersey. Various APHIDS infested and damaged shade trees to varying degrees, and SCALE INSECTS were of concern on these hosts in various areas during 1961. Several species of SAWFLIES were of concern in various sections of the country. BIRCH LEAF MINER was economically damaging in several nurseries in Oregon and was a problem in nurseries in Minnesota and Ohio. This leaf miner caused extensive damage to gray birch in New Jersey, and was severe in Vermont and prevalent in New Hampshire during the year. ELM SAWFLY was noted for the first time in Racine County, Wisconsin, during 1961, and has been previously reported from only 4 other counties in the State. Various SPIDER MITES were damaging in several areas and ERIOPHYID MITES were also of some concern during the 1961 season on shade trees.

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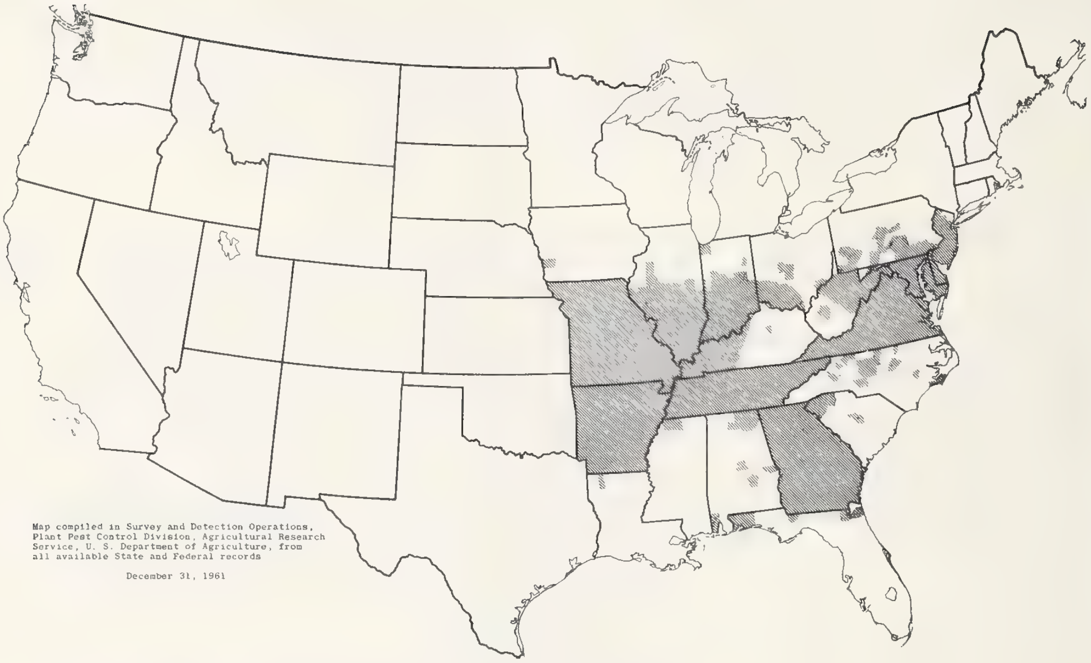
Various species of Lepidoptera infested and damaged shade trees over the Nation during the 1961 season. Of these, FALL WEBWORM (Hyphantria cunea) was unusually abundant in WASHINGTON during the year on forest and shade trees and ornamentals throughout the eastern and western slopes of the Cascade Mountains, the Puget Sound region and the southwestern portion of the State. Infestations of fall webworm in OREGON during 1961 did not reach the high peak attained during 1960. Adults were first collected in Salem on March 5 and were emerging in moderate numbers by mid-May. Fall webworm larvae were found June 29 and infestations declined after August 27. In NEW MEXICO, first and second-generation larvae of fall webworm defoliated pecan, mulberry, poplar and fruit trees throughout the State, with second-generation infestations being much more severe than those of the first generation. In TEXAS, damage by this pest was common on various shade trees in the eastern half of the State and, in ARKANSAS, infestations began early and were heavier than usual throughout the 1961 season.

Fall webworm was quite prevalent in MINNESOTA in the Minneapolis-St. Paul area, and north to Grand Rapids in Itasca County during the 1961 season. The pest was abundant in many areas of ILLINOIS and was conspicuous in INDIANA on walnut, cherry and other deciduous trees in Greene, Dubois, Spencer, Owen and Pike Counties during early August.

Fall webworm was very conspicuous over VIRGINIA during 1961, particularly on sourwood, persimmon, pecan and walnut trees; but infestations were very light in most areas of RHODE ISLAND during the season. The pest was unusually prevalent everywhere in NEW HAMPSHIRE this year; and webs began to appear on hardwoods in Kennebec County, MAINE, by July 15, with light numbers causing light damage to apple trees in Androscoggin and Sagadahoc Counties by August 4.

MIMOSA WEBWORM (Homadaula albizziae) developed late in 1961 in NEW JERSEY to cause heavy damage to honeylocust and Moraine locust trees during August and September. Honeylocust and Moraine locust trees were completely defoliated in some areas of southwestern PENNSYLVANIA, and severe defoliation of Moraine locusts in street plantings in some towns and cities in this area of the State caused some concern. Mimosa webworm was again severe on unprotected mimosa and honeylocust in all sections of MARYLAND, and the pest infested mimosa and honeylocust in many localities over VIRGINIA during the 1961 season. Infestations of this pest ranged light to heavy on mimosa in GEORGIA. The first brood of mimosa webworm was relatively light this season in MISSOURI, but heavy populations of the second brood injured foliage of honeylocust and mimosa in central and southern areas of the State. Infestations of mimosa webworm were extremely heavy on honeylocust trees over the entire southern half of ILLINOIS, with most trees completely brown and covered with silk by mid-August. This pest was recorded for the first time in Montgomery County during 1961. Of the 65 nursery infestations of mimosa webworm reported in OHIO during the 1961 season, 61 were in the central and southwestern parts of the State; the remaining infested nurseries were in the southeast area. Infestations of this pest continued to be confined, for the most part, to the counties that were infested in the State during 1960. There was a report of infested material being received from a resident of Dover, Tuscarawas County, and there was an unconfirmed report of an infestation on a residential property in Lake County, Ohio. (See map on following page).

Distribution of Mimosa Webworm



Map compiled in Survey and Detection Operations,
Plant Pest Control Division, Agricultural Research
Service, U. S. Department of Agriculture, from
all available State and Federal records

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FALL CANKERWORM (Alsophila pometaria) infested ornamental apple trees in Denver, COLORADO, with infestations also reported on various other trees and shrubs. SPRING CANKERWORM (Paleacrita vernata), after 3 years of causing extensive injury to elm, hackberry and locust in areas of KANSAS, was not reported during 1961 from any community except Kansas City and adjacent Wyandotte County. This reduction may have been due to a natural decline and/or extensive controls carried out by many eastern communities in the State. Dormant sprays for Dutch elm disease have been extremely effective in controlling spring cankerworm. Moderate to severe populations of spring cankerworm and fall cankerworm defoliated native and cultivated shade trees in many sections of NORTH DAKOTA during the 1961 season, with populations of these pests reaching outbreak proportions in many communities of the State. Various species of CANKERWORMS appear to be increasing in MINNESOTA and were reported causing severe defoliation of farm groves in the west central district of the State. Some defoliation by these pests was also reported in the Twin City area of Minnesota during the past season. Spring cankerworm and fall cankerworm were abundant on municipal trees, as well as forest trees, in NEW JERSEY in the spring of 1961, and various species of cankerworms caused near defoliation of oaks locally in the Cranston area of Providence County, RHODE ISLAND, by May 31.

LINDEN LOOPER (Erannis tiliaria) was taken at lights in NEW HAMPSHIRE during November 1961, indicating some possibility of local outbreaks during the 1962 season.

A SPEAR-MARKED BLACK MOTH (Eulype hastata) rolled leaves of birch and aspen trees in ALASKA, but not as severely as in past years; and an undetermined NOCTUID that rolls leaves was a main problem on delphinium in most of that State during the 1961 season.

TENT CATERPILLARS (Malacosoma spp.) were very prevalent during the 1961 season in CALIFORNIA, defoliating willow, ceanothus and some wild Prunus spp. Tent caterpillars began hatching in the Willamette Valley of OREGON the week of April 9, but unfavorable weather hampered larval development during April and resulting infestations were subnormal.

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) caused conspicuous injury in Washington and Kane Counties, UTAH, during the 1961 season; and this species, or a closely related species, damaged poplars in San Juan and Grand Counties in that State. Although a moderate forest and shrub pest in most canyons in Utah, FOREST TENT CATERPILLAR (M. disstria) caused only occasional damage to maple, ash, apple and shrubs about communities in the State during 1961. In COLORADO, the pest infested elms in Denver, Adams and Larimer Counties, willow and cottonwood in Denver and Larimer Counties, and ornamental apples in Denver. Forest tent caterpillar partially defoliated various trees in central and west central counties of TEXAS, and there was some indication of a population buildup of the pest in the Lower Peninsula of MICHIGAN, north of a line from Muskegon to Bay City. Forest tent caterpillar was more abundant on oaks and maples in New Castle and Kent Counties, DELAWARE, during April and May than for the past few years, and infestation was heavy in an area of Salem County, NEW JERSEY. In MAINE, heavy numbers of forest tent caterpillar occurred on shade trees in the Farmington and Wilton areas of Franklin County, with severe damage; and heavy populations caused heavy damage in Mapleton, Aroostook County, during the season.

Also in MAINE, small tents of EASTERN TENT CATERPILLAR (M. americanum) were common on cherry and apple trees in Kennebec County and along roadsides in Cumberland, Penebscot, Kennebec, York and Oxford Counties by late May. Light infestations were also present on apple and cherry by early June in Androscoggin and Sagadahoc Counties. Eastern tent caterpillar was spotty in appearance over VERMONT. Tents of this pest appeared heavy locally in Providence, Providence County, RHODE ISLAND, very scattered in the remainder of the State and were virtually absent in southern areas. Eastern tent caterpillar was first observed in Rhode Island about May 10. Eastern tent caterpillar was very light in NEW JERSEY during the spring of the year, but was very conspicuous throughout VIRGINIA during the spring and summer, especially on wild cherry. Infestations were about average this year in GEORGIA, where much defoliation of native cherry trees occurred. Larvae of eastern tent caterpillar were common on wild cherry in most areas of INDIANA in May, with defoliation being quite extensive in many instances; and small nests were observed throughout southern ILLINOIS April 25-27 and in the northern area of the State May 1-4. Many wild cherry trees were defoliated by May 15-25. Eastern tent caterpillar caused concern in the eastern three-fourths of TEXAS during the 1961 season.

WALNUT CATERPILLAR (Datana integerrima) was commonly reported from the southern half of MINNESOTA this year, and was again abundant during 1961 in the northern two-thirds of ILLINOIS where walnut trees in the northern half of the State have been defoliated each year for the past 5 years. In INDIANA, walnut caterpillar defoliated walnut trees in Madison County in late July. YELLOW-NECKED CATERPILLAR (Datana ministra) fed heavily in CALIFORNIA on oak in Paradise, Butte County, and on sumac in San Diego County; and the pest caused occasional local damage to various plants in VIRGINIA this season. NOTODONTIDS (Datana spp.) attacked oak trees in the eastern half of TEXAS; and scattered infestations of VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) were rather common during October 1961 in ARKANSAS, as they were during the 1960 season. In MARYLAND, larvae of POPLAR TENT MAKER (Ichthyura inclusa) caused noticeable injury to poplars at localities in Harford, Montgomery and Prince Georges Counties.

LEOPARD MOTH (Zeuzera pyrina) was reported in CONNECTICUT from Cheshire, New Haven County, and from Storrs, Tolland County, and several severe infestations of CARPENTERWORM (Prionoxystus robiniae) were reported on ash from several areas of NORTH DAKOTA during the season. MAPLE TRUMPET SKELETONIZER (Epinotia aceriella) was unusually prevalent on rock maple in NEW HAMPSHIRE during 1961.

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) caused occasional local damage to ornamental pine in VIRGINIA during the 1961 season, and was considered the most important pest of ornamental pines this season in the southern portion of INDIANA, where increasing evidence of parasitism indicates that a natural balance may eventually exist. Also in Virginia, PINE WEBWORM (Tetralopha robustella) caused occasional damage to ornamental pines locally. Eggs, larvae and adults of MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) were abundant in Curry and southern Lea Counties, NEW MEXICO; and larvae defoliated shade trees, causing considerable damage at Clovis and Hobbs. The pest infested elms in Denver, Adams and Larimer Counties, COLORADO, and attacked Chinese elms in many southern counties of CALIFORNIA during the 1961 season. Scattered populations of an undetermined species of SPINY ELM CATERPILLAR defoliated Siberian elms in many communities in NORTH DAKOTA this season.

Several other species of Lepidoptera were of concern during 1961. SATIN MOTH (Stilpnotia salicis) was numerous in many areas of MAINE, causing moderate damage to willows in Orono, Penobscot County, and severe damage to poplars in the Guilford area of Piscataquis County and in the Lincoln area of Penobscot County. SOLITARY OAK LEAF MINER (Cameraria hamadryadella) was prevalent on oaks generally in NEW HAMPSHIRE during the 1961 season; and OAK LEAF MINERS (Cameraria spp.) were very abundant and widespread during 1961 in VIRGINIA, especially in northern and central areas of the State. Also in Virginia, larvae of CATALPA SPHINX (Ceratomia catalpae) were abundant on catalpa at a few locations. A heavy buildup of ORANGE-STRIPED OAKWORM (Anisota senatoria) occurred late in the season in Ocean, Atlantic, Cape May and other southern counties of NEW JERSEY. ASH BORER (Podosesia syringae fraxini) killed a large ash tree in Tippecanoe County, INDIANA, this season; and WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) was reported heavy on elm in certain localized sections of the Twin Cities area of MINNESOTA. FRUIT-TREE LEAF ROLLER (Archips argyrospilus) infested ornamental apple trees in Denver, COLORADO, and infestations were severe on many trees and shrubs throughout WYOMING, with more damage occurring during the 1961 season than during 1960 in that State. Several infestations of fruit-tree leaf roller occurred on California live oak in scattered locations over southern and central portions of CALIFORNIA this season.

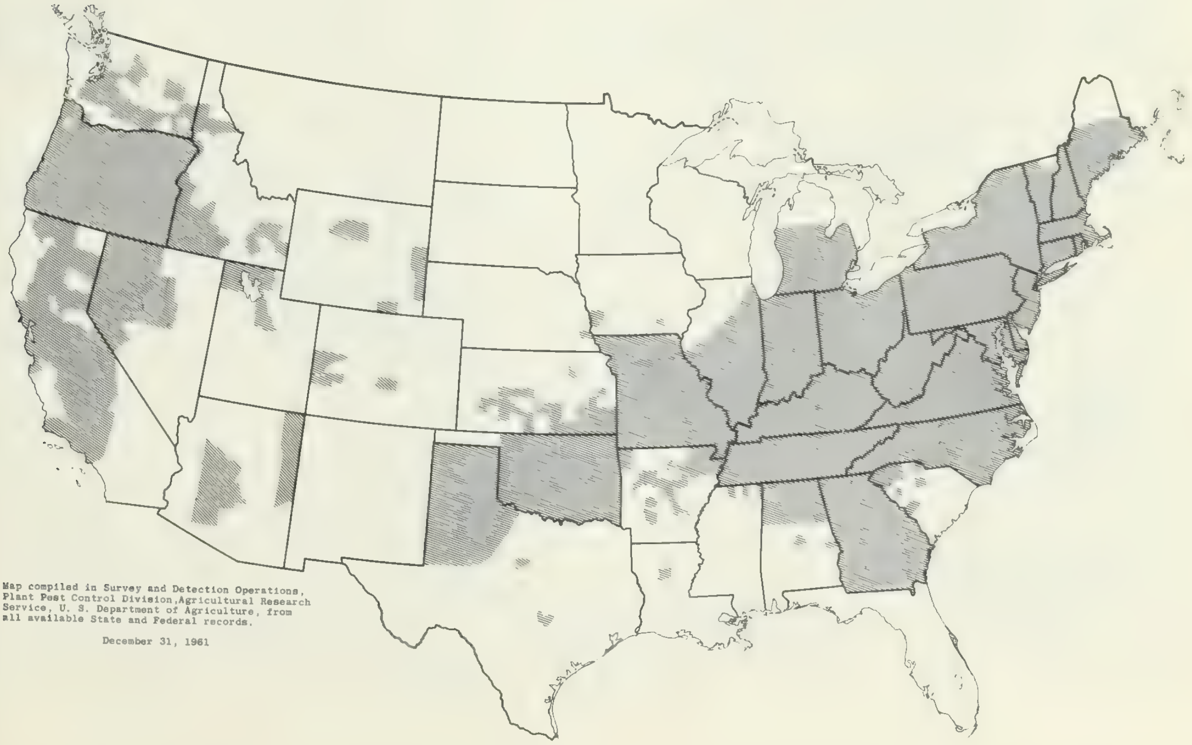
Heavy populations of a SHIELD BEARER (Coptodisca sp.) damaged poplar foliage in central ARIZONA and in Yuma and Mohave Counties during the summer of 1961; and a NOCTUID (Oncocnemis punctilinea) varied light to heavy during April in Clark County, NEVADA, where it caused partial defoliation of many ash trees (Fraxinus spp.). Infestations of various species of LEAF MINERS were noted on poplar, cottonwood and birch in scattered communities over UTAH during the 1961 season; and an undetermined species attacked foliage of pyramidal English oak in Tippecanoe County, INDIANA, this season.

ELM LEAF BEETLE (Galerucella xanthomelaena) infestations ranged light to heavy over the Nation during 1961 and damage was severe in some areas. Local infestations in southern MAINE ranged moderate to heavy and damage was light to moderate by June 30. Elm leaf beetle populations were moderately heavy on untreated elms throughout NEW HAMPSHIRE and were prevalent in VERMONT this season. Larvae caused severe foliage injury to several large elms in southern Queen Annes County, MARYLAND, and were occasionally damaging locally to elm in VIRGINIA. Elm leaf beetle was general throughout GEORGIA during the 1961 season and caused much defoliation.

Elm leaf beetle again caused heavy damage to Chinese elms in many areas of INDIANA and was very abundant in the southern half of ILLINOIS, causing premature browning and dropping of many elm leaves. First-generation damage by elm leaf beetle began appearing in central and southern areas of MISSOURI during late June; and in early July, second-generation adults were active, with heavy egg deposition occurring. Through July, August and September, late broods of this chrysomelid heavily infested elms throughout the State and completely defoliated trees were evident in any area of the State. In late September, adults caused considerable trouble to homeowners in Missouri by entering houses to hibernate. Elm leaf beetle was on the increase in KANSAS during the 1961 season. Adults of this leaf beetle were becoming active in hibernation quarters in OKLAHOMA by mid-February, and by mid-March were attacking elm trees in the Hughes County area. Populations increased until heavy to severe damage was reported in most parts of the State by August, with complete defoliation occurring in several areas. This was the fourth consecutive year of heavy outbreaks in Oklahoma and the pest extended over the entire State, with the exception of the panhandle area. Elm leaf beetle infestations were heavier and more widely spread during the 1961 season than during 1960 in ARKANSAS; and the pest infested elms in TEXAS, with widespread damage occurring in the western and panhandle areas.

Heavy populations of elm leaf beetle defoliated elms in the St. Johns area of Apache County, ARIZONA, and in the central area of the State during the summer and early fall. A light infestation at Prescott, Yavapai County, was the first known occurrence of elm leaf beetle in that county. Elm leaf beetle caused considerable defoliation of elms in Mesa County, COLORADO, during the 1961 season; but was less destructive to elm foliage in parts of Salt Lake, Utah and Weber Counties, UTAH, than during 1960. The pest also occurred in Cache County, Utah, during 1961. Statewide infestations of elm leaf beetle in IDAHO appeared to be lower during 1961 than for the past 6 years. Adult flights reportedly reached their peak in the Twin Falls area of the State the night of July 17. Damage to elms throughout OREGON continued at a high level during 1961, with complete defoliation of trees occurring near Eugene, Lane County, and Medford, Jackson County. In NEVADA, elm leaf beetle was recorded for the first time in Eureka County at Beowawe and in Lander County at Austin during August and September. Damage to untreated or improperly treated trees was severe in those counties of Nevada where it presently occurs. Heavy populations of elm leaf beetle in many locations over CALIFORNIA required considerable chemical control during the 1961 season.

Distribution of Elm Leaf Beetle



Map compiled in Survey and Detection Operations, Plant Pest Control Division, Agricultural Research Service, U. S. Department of Agriculture, from all available State and Federal records.

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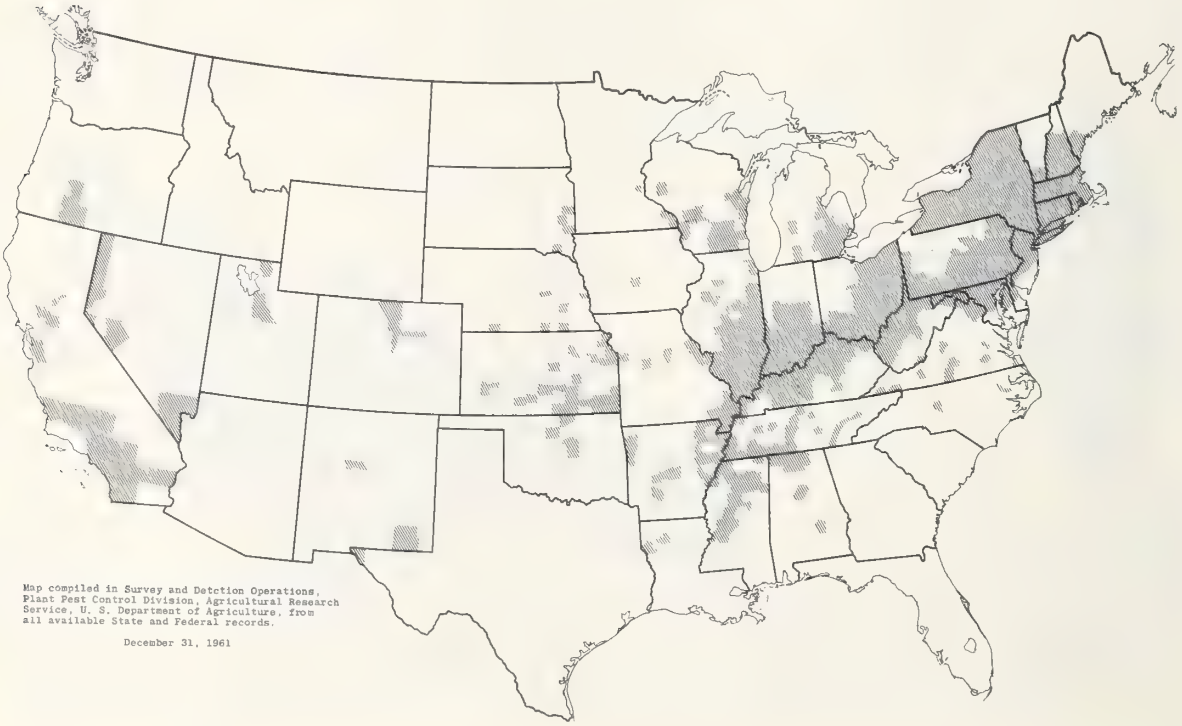
Several other LEAF BEETLES were troublesome to various hosts during the season. ELM CALLIGRAPHA (Calligrapha scalaris) increased as separate infestations in KANSAS during 1961, centered in Manhattan, Riley County; Concordia, Cloud County; Hutchinson, Reno County; Kingman, Kingman County; and Pratt, Pratt County. LOCUST LEAF MINER (Xenochalepus dorsalis) caused browning of leaves of black locust in Knox and Greene Counties, INDIANA, and was reported abundant in the southeastern part of the State during the season. IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) was troublesome in RHODE ISLAND, especially on weeping willow in the Providence area of Providence County during late May; and was severe on many weeping willows in all sections of MARYLAND during late June and July. Local, heavy infestations of a COTTONWOOD LEAF BEETLE (Chrysomela scripta complex) caused much defoliation in the Fort Valley area of Peach County, GEORGIA, and was extremely abundant on balsam poplar (Populus balsamifera) in the northern part of IDAHO during early June, with greatest infestations being encountered in the Spirit Lake area of Kootenai County. Defoliation by this pest was often severe. Anomoea laticlavia, which defoliated many honeylocusts in KANSAS during 1959 and 1960, particularly in nursery plantings, was reported only as scattered individuals during the 1961 season in that State; but adults of this species were abundant on honeylocust in a few spots in ILLINOIS during the year.

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) infestations that received treatments during the 1961 season in CALIFORNIA were very light. However, local, heavy infestations in other areas caused the loss of limbs and of trees. No Dutch elm disease has yet been found in California. In NEVADA, this beetle was found at Hawthorne, Mineral County, and at Gardnerville, Douglas County, which were new records for these 2 counties during 1961. This primary vector of Dutch elm disease was found in MINNESOTA for the first time during the 1961 season, when live larvae and adults were found in elm wood in St. Paul, Ramsey County, and typical galleries were found in a boulevard tree. Adults of smaller European elm bark beetle began emerging in WISCONSIN

Distribution of Smaller European Elm Bark Beetle



Map compiled in Survey and Detction Operations, Plant Pest Control Division, Agricultural Research Service, U. S. Department of Agriculture, from all available State and Federal records.

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June 4-5, about 3 weeks later than during 1960. Second-generation adults emerged in southeastern counties of Wisconsin during the last week of July. Smaller European elm bark beetle continued very important in INDIANA during 1961 because of the continuing spread of Dutch elm disease, particularly in the northern quarter of the State. Both smaller European elm bark beetle and NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) continued to spread Dutch elm idsease in NEW JERSEY during the 1961 season, resulting in the death of more American elms during the year.

SOUTHERN PINE BEETLE (Dendroctonus frontalis) infested a few hundred acres of ornamental and Virginia pines in the southeastern portion of Sussex County, DELAWARE, during the 1961 season, causing moderate injury throughout the area. In ARIZONA, an ENGRAVER BEETLE (Ips sp.) was heavy in some pines in Prescott, Yavapai County, this year.

Although TWIG PRUNER (Elaphidion villosum) was very common in CONNECTICUT during 1960, none were seen in the State during the 1961 season. However, TWIG GIRDLER (Oncideres cingulata) occasionally damaged hickory and pecan in local areas of VIRGINIA during the season, and damaging populations occurred in the eastern half of OKLAHOMA during October and November. Infestations of this pest on elms, pecans and hickory in Oklahoma during 1961 appeared to be the heaviest in several years. Adults of COTTONWOOD BORER (Plectodera scalator) and POPLAR BORER (Saperda calcarata) were observed emerging and flying during the second week of June in the Albuquerque area of Bernalillo County, NEW MEXICO; and an undetermined species of CHRYSOMELID BEETLE infested willow and cottonwood trees in Kit Carson County, COLORADO, this year. Damage by LOCUST BORER (Megacyllene robiniae) was again very severe in Salt Lake County, UTAH, this season, with many desirable shade trees being damaged or killed; and FLATHEADED and ROUNDHEADED WOOD BORERS caused some damage to maple, ash, poplar and willow trees in the State this season.

Adults of WILLOW FLEA BEETLE (Rhynchaenus rufipes) were abundant on willow in the Wakefield area of Washington County, RHODE ISLAND, during late June; and WHITE-PINE WEEVIL (Pissodes strobi) was occasionally damaging to ornamental conifers locally in VIRGINIA this season. Adults of POPLAR-AND-WILLOW BORER (Sternochetus lapathi) were common on poplars in most areas of northern IDAHO during July; and a BLISTER BEETLE (Epicauta pardalis) defoliated shade trees about some ranch headquarters in Pima County, ARIZONA, during June and July.

Various species of APHIDS infested and damaged shade trees to varying degrees during the 1961 season. Numerous infestations of WOOLLY ALDER APHID (Prociphilus tessellatus) were reported on maple during 1961 in VIRGINIA; and ELM COCKSCOMB GALL (Colopha ulmicola) was occasionally damaging to elm locally in the State. In MONTANA, ELM LEAF APHID (Myzus ulmifolii) was damaging in Lincoln, Rosebud and Yellowstone Counties; and POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) was abundant on trees in Cascade, Lewis and Clark, Fallon and Chouteau Counties during the 1961 season. Also in Montana, POPLAR VAGABOND APHID (Mordwilkoja vagabunda) infested cottonwood trees in Livingston, Park County,during September. Galls of poplar vagabond aphid were numerous on many poplar trees throughout WYOMING, but little was done to control the pest; and galls caused by the aphid were sometimes very conspicuous in UTAH, particularly in parts of the Uintah Basin, Rich, Washington and Kane Counties. NORWAY-MAPLE APHID (Periphyllus lyropictus) caused normal damage in Utah during the 1961 season and became extremely abundant in the Moscow area of Latah County, IDAHO, during June, with nearly all maples in this area dripping freely during that period. Infestations of this aphid were generally severe on maples also in the northwestern part of Idaho during May and June and, by July 7, a large percentage of the population in the Moscow area was in the winged stage. Heavy populations of PAINTED MAPLE APHID (Drepanaphis acerifoliae) developed on silver maple in Riverside County, CALIFORNIA, and light populations were present in local areas in the southern part of the State. Light to heavy infestations of WALNUT APHID (Chromaphis juglandicola) developed on walnut trees in California, with street plantings becoming a nuisance in many areas due to heavy honeydew production. Native walnuts were also infested by this species in the State. Infestations of WOOLLY APPLE APHID (Eriosoma lanigerum) occurred on elms in Denver, Adams and Larimer Counties, COLORADO, during the 1961 season. Although WOOLLY ELM APHID (Eriosoma americanum) was commonly damaging in UTAH during 1961, it was also heavily parasitized. Light infestations of this aphid also occurred on elms in South Kingstown, Washington County, RHODE ISLAND, during June.

Several other aphids were also of concern during the 1961 season. Lachnus salignus was very abundant on weeping willow in PENNSYLVANIA, causing much honeydew which attracted large numbers of wasps. Various species of aphids were very abundant throughout VIRGINIA during 1961, with reports of infestations on hickory and elm being numerous. Numerous infestations of Lachnus salignus occurred on willow also during the season in Virginia. Heavy numbers of a bark-feeding aphid, probably Longistigma sp., appeared on oaks in the Houston-Beaumont area of TEXAS, and various species of aphids were generally more numerous on trees in ARKANSAS during 1961 than in 1960, with Drepanaphis sp. infesting maple and Lachnus salignus infesting weeping willow. GIANT BARK APHID (Longistigma caryae) was quite plentiful in WISCONSIN during 1961 on willows; and Pterocomma smithiae infested willow and cottonwood in Bent County, COLORADO. Aphids caused moderate trouble in UTAH this season, especially during the spring, on maples, boxelder, elms, ash, poplar, willow and other shade trees, with infestations of Drepanaphis utahensis being high in the canyons in the northern and central areas of the State. Prociphilus fraxinifolii and several other species of aphids caused normal damage in Utah during 1961; and various species were occasionally abundant, especially during the fall, on beech at Logan, Cache County, as well as on maple, poplar, willow and linden. Leaves folded by Thecabius populiconduplifolius and beaded galls of T. populimonilis were commonest on poplars in northern counties of Utah; and Lachnus salignus was severe on weeping willows in a few localities of the State.

COWPEA APHID (Aphis sp., probably craccivora) heavily infested locust (Robinia sp.) in Clark County, NEVADA, during April of this year. Aphids were generally very abundant on shade trees in CALIFORNIA this season and considerable honeydew on street trees was a nuisance. Prociphilus fraxinifolii became severe on ash trees by midsummer, causing an unsightly appearance. Aphids, along with disease, were very damaging to ash trees in California this season. Infestations of Pemphigus populicaulis occurred on poplar trees in many locations in the State, and populations developed to medium levels in Humboldt County. Prociphilus sp. was particularly heavy on ash trees in San Joaquin County,and locally in many plantings in the northern part of California during the 1961 season.

Heavy populations of a PHYLLOXERA (Phylloxera popularia) damaged poplar trees in the Alamogordo area of Otero County, NEW MEXICO, during June. A WOOLLY LARCH APHID (Chermes strobilobius) was quite plentiful during 1961 in WISCONSIN; and PINE BARK APHID (Pineus strobi) was reported as numerous on ornamental conifers in VIRGINIA during the year.

Adults of SYCAMORE LACE BUG (Corythucha ciliata) became very abundant locally in RHODE ISLAND on sycamore in Providence, Providence County, in mid-September. Sycamore lace bug was also abundant and damaging late in the 1961 season in NEW JERSEY, and lightly damaged sycamores in the southern part of TEXAS. An ASH TINGID (Leptophya minor) occurred in locally heavy infestations on ash trees in the San Joaquin Valley of CALIFORNIA. Heavy infestations of undetermined species of LACE BUGS were widespread on elm, ash and oak in eastern NORTH DAKOTA; and various species of these pests were heavier on elm and sycamore in ARKANSAS during 1961 than in 1960; LACE BUGS (Corythucha spp.) were abundant on oak, sycamore, walnut and pyracantha in many areas of VIRGINIA during the 1961 season, and were abundant and injurious on oak, sycamore and hawthorn in all sections of MARYLAND during most of the summer.

ASH PLANT BUG (Neoborus amoenus) was very abundant on ash in WISCONSIN during the 1961 season, particularly in the southeast quarter of the State. A SPITTLEBUG (Clastoptera arizonana) was an extreme nuisance and caused some damage to acacia trees in San Diego and Los Angeles Counties, CALIFORNIA, and a COREID BUG (Leptocoris rubrolineatus) was more prevalent in the State this year, infesting some shade trees, as well as becoming a pest in homes, in fruit trees and on dooryard shrubs. Also in California, LEAFHOPPER populations were abundant and high on some shade tres, with maples being particularly infested. However, apparently little damage resulted from these infestations. Discoloration of elm foliage, caused by various species of leafhoppers, was common but moderate in UTAH during the 1961 season. A LEAFHOPPER (Keonolla confluens) was common to abundant in south central and southwestern parts of IDAHO during late April and early May.

A PSYLLID (Psylla uncatoides) caused severe damage and dieback to acacia in CALIFORNIA. This pest has become widespread in the State, and damage was particularly bad in 1961 due to low moisture. Heavy infestations of another PSYLLID (Euphyllura arbuti) occurred on madrone trees in Marin County, with trees becoming unsightly by midsummer. Light infestations of a WHITEFLY (Trialeurodes sp.) occurred on mulberry, ash and carob trees in central and southwestern ARIZONA during the summer of 1961.

SCALE INSECTS were of concern on shade trees in various areas during the year. OYSTERSHELL SCALE (Lepidosaphes ulmi) was severe locally on walnut trees in CALIFORNIA and was exceedingly abundant on blue ash in the Twin Falls area of IDAHO during early May. Blue ash is generally considered to be relatively immune to attack by most insect pests. Oystershell scale was frequently injurious in UTAH, especially to ash, poplar and willow, and caused heavy damage to trees in WYOMING during 1961, but controls, when properly applied, were generally effective in the latter State. Infestations of oystershell scale on elm and maple in MARYLAND were of major concern during the 1961 season, as were infestations of OBSCURE SCALE (Chrysomphalus obscurus) on oaks in the State. Obscure scale was also a serious and general problem on pin oak trees throughout NEW JERSEY. PINE NEEDLE SCALE (Phenacaspis pinifoliae) infestations on various species of ornamental pines in MARYLAND were of major concern during the 1961 season. Damaging numbers of pine needle scale were reported in the Denver area of COLORADO in early June; and infestations were present during September and October on spruce, pine and juniper in Denver, Adams and Larimer Counties. Pine needle scale caused local damage during 1961 in UTAH, where infestations were generally below normal; and the pest heavily damaged trees and ornamentals in WYOMING, with controls being generally effective when properly applied.

ELM SCURFY SCALE (Chionaspis americana) heavily infested scattered elms in Runnels County, TEXAS, this season. First crawlers of Aspidiotus liquidambaris of the season in MISSOURI were noted in the St. Louis area in early May, and light to moderate infestations were noted in the Kansas City and St. Louis areas throughout the season. In ILLINOIS, this armored scale is becoming more widespread and abundant on sweetgum trees. A PIT SCALE (Asterolecanium minus) was reported for the first time from NORTH CAROLINA during the 1961 season, when it was found March 20 on Quercus sp. in Madison County. Determination was made by L.M. Russell.

Spotted, local infestations of CALIFORNIA RED SCALE (Aonidiella aurantii) occurred throughout CALIFORNIA on various hosts, with many shade trees also infested, and a medium infestation of FORBES SCALE (Aspidiotus forbesi) occurred on Modesto ash in Maxwell, Colusa County. Also in California, medium to heavy populations of EUROPEAN ELM SCALE (Gossyparia spuria) occurred on elms in many locations. European elm scale was commonly damaging in UTAH this season, and heavily damaged shade trees and ornamentals in WYOMING. However, controls were generally effective in the latter State when properly applied. European elm scale infested elms in all areas of COLORADO during 1961 and, in the western part of KANSAS, crawlers emerged during the period June 13-18. Infestations in Kansas continued to cause dieback of branches and black, sticky foliage and bark. European elm scale was reported somewhat more frequently in MINNESOTA during 1961 and apparently is more injurious than EUROPEAN FRUIT LECANIUM (Lecanium corni), which continued to be a problem in many municipalities in the State during 1961. Occasional buildups of this pest occurred on shade trees such as maple in CALIFORNIA. COTTONY MAPLE SCALE (Pulvinaria innumerabilis) was abundant on maples in the southwestern area of IDAHO and in many other areas of the State this year. Populations in the northern part of the State appeared to be greater than in the past few years and more abundant than in previous years in the Blackfoot area of Bingham County and Idaho Falls area of Bonneville County. In UTAH, cottony maple scale was below average during 1961, but did cause some local damage. Infestations of TULIPTREE SCALE (Toumeyella liriodendri) were scattered but severe on tulip-poplar in OHIO this season. In MARYLAND, infestations of Ceroplastes sp. and Fiorinia externa on hemlock were of major concern during 1961.

A MEALYBUG (Phenacoccus acericola) was extremely heavy on leaves and branches of maple in Providence, Providence County, RHODE ISLAND, in early September. An OAK KERMES SCALE (Kermes pubescens) was heavy on several bur oak trees in Lafayette, Tippecanoe County, INDIANA, with crawlers hatching in mid-July; and the pest increased on post oak and bur oak in southeastern KANSAS during the 1961 season. COTTONY-CUSHION SCALE (Icerya purchasi) was common on mimosa in various areas of TEXAS during the year.

THRIPS were particularly abundant in CALIFORNIA during the season, with populations ranging medium to heavy on some trees. Pseudodendrothrips mori, first found in ILLINOIS 2 years ago, was common on introduced mulberry trees in that State during 1961, but none were found on native mulberry.

Several species of SAWFLIES were of concern on shade trees in various sections of the country this year. BIRCH LEAF MINER (Fenusa pusilla) adults emerged in nurseries in the Portland area of Multnomah County, OREGON, on April 20. Economic damage occurred in several nurseries where thousands of young trees were infested, nearly every leaf having one or more mines. This leaf miner was also found in elm plantings in Woodburn, Marion County, on June 21. Birch leaf miner continued to be a troublesome problem in nurseries in MINNESOTA this year; and, of a total of 76 nursery infestations reported in OHIO during the 1961 season, 68 occurred in the northeastern portion of that State. The first small mines of birch leaf miner for this season in DELAWARE were noted on birch by May 12. First and succeeding generations were apparently very numerous in the State, as evidenced by heavy infestations throughout most of the summer, particularly in New Castle County. First and second generations of birch leaf miner caused extensive damage to gray birch in NEW JERSEY; and the pest was very common and abundant in CONNECTICUT during 1961. Birch leaf miner adults were first observed in RHODE ISLAND on May 11 in the Kingston area of Washington County. Pupation of the first generation occurred in mid-June, with second-generation adults emerging June 23. Birch leaf miner was severe in VERMONT this year, and was prevalent in NEW HAMPSHIRE, where extensive browning of birch foliage was evident by midsummer. In MAINE, birch leaf miner infestations and damage were moderate in Washington County and damage by this pest was severe in Oxford County. Very heavy damage occurred in Androscoggin, Sagadahoc and Piscataquis Counties. Statewide, infestations on birch range moderate to heavy and damage light to heavy. Adults of birch leaf miner were still flying in abundance and apparently depositing on birch in Kennebec County, Maine, on July 26.

In MAINE, moderate populations of ELM LEAF MINER (Fenusa ulmi) caused light damage to English elm in Manchester, Kennebec County, in June; light infestations of LARCH SAWFLY (Pristiphora erichsonii) occurred on birch in local areas of Washington County by July 17; and local, moderate populations of MOUNTAIN-ASH SAWFLY (Pristiphora geniculata) caused light damage to ornamental mountain-ash by July 6. Mountain-ash sawfly also defoliated ornamental mountain-ash in urban areas of VERMONT during the 1961 season. In the Newport area of Newport County, RHODE ISLAND, infestations of PEAR-SLUG (Caliroa cerasi) were observed on mountain-ash and larval infestations of WILLOW SAWFLY (Nematus ventralis) were present on willow. Also in Rhode Island, an infestation of a WEB-SPINNING SAWFLY (Neurotoma fasciata) occurred in Gloucester, Providence County, during early June. The first-known nursery infestation of another WEB-SPINNING SAWFLY (Acantholyda sp.) in OHIO was found in the central part of the State during the 1961 season. In 1960, several miles from this nursery, a white pine planting was found infested by what was later determined to be Acantholyda zappei, a native species of web-spinning sawfly. Examination of this planting in early August, and again in October, revealed what appeared to be 2 types of larvae and prepupae. Rearing attempts will be undertaken during the spring of 1962 to determine if a second species is present. This infestation in Licking County was again severe during June 1961.

ELM SAWFLY (Cimbex americana) was noted in Racine County, WISCONSIN, for the first time during 1961, and has been reported from only 4 other counties in the State. Severe populations of this sawfly were reported defoliating elm at Carson, Grant County, NORTH DAKOTA, during the 1961 season. Damaging populations of two species of GALL WASPS, Neuroterus saltatorius and Bassetia ligni, were present on white oak in the western portion of OREGON this past season.

BALSAM GALL MIDGE (Cecidomyia balsamicola) was less troublesome in NEW HAMPSHIRE during the 1961 season than during 1960. A GALL MIDGE (Dasyneura gleditschiae) was present throughout the summer of 1961 in nursery stock and on shade trees in NEW JERSEY; and another GALL MIDGE (D. communis) was somewhat prevalent on maple shade trees in the State this season. WALNUT HUSK FLY (Rhagoletis completa) occurred on street trees and walnut stands in many locations of CALIFORNIA this year.

GALLS caused by insects and mites were common on many shade trees in CONNECTICUT during the 1961 season.

Various SPIDER MITES were damaging to shade trees in several areas during the year. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was prevalent as usual throughout WYOMING on most shade trees, with damage severe in many cases and control costs high. Infestations of this spider mite occurred on all evergreens in COLORADO in late June and during the first 2 weeks of August. Infestations were also reported on spruce, pine and juniper in September and October in Denver, Adams and Larimer Counties. Two-spotted spider mite severely damaged shade trees and caused complete defoliation of untreated hosts in many areas of CALIFORNIA this season. This pest was more severe in the State this year than for several years. Heavy infestations of EUROPEAN RED MITE (Panonychus ulmi) developed on elm trees this year, also in California.

Medium to heavy infestations of several species of SPIDER MITES occurred on some mulberry and ash shade trees in ARIZONA during the past season. Eotetranychus weldoni caused substantial late-summer discoloration to weeping willow, black willow and other willow foliage in many areas of UTAH; infestations of Bryobia rubrioculus were reported on spruce, pine and juniper during September and October in Denver, Adams and Larimer Counties, COLORADO. Populations of several species of spider mites were about normal in MINNESOTA during the 1961 season. Eotetranychus multidigituli heavily damaged locust trees in the northeastern portion of ILLINOIS, and caused defoliation of ornamental thornless honeylocust trees in many areas of INDIANA during 1961. Moderate infestations of Oligonychus aceris occurred on silver maple in Wayne County, OHIO, during August, and E. multidigituli was unusually abundant on thornless honeylocust in the northeastern area of Ohio.

ERIOPHYID MITES were also of some concern during the 1961 season on shade trees. MAPLE BLADDER-GALL MITE (Vasates quadripedes) developed light to moderate infestations locally throughout RHODE ISLAND during mid-June; and infestations of this pest occurred in 97 nurseries out of a total of 113 reporting from the western half of OHIO. Heavy infestations of maple bladder-gall mite occurred in INDIANA on silver maple trees in Crawfordsville, Montgomery County; Fort Wayne, Allen County; and Lebanon, Boone County, during the 1961 season.

ERIOPHYID MITES were reported in increasing numbers from terminal growth of various shade trees in MINNESOTA this year, and an undetermined species has become exceedingly abundant and damaging to cottonwood trees throughout northern, central and eastern portions of MONTANA, with many trees having been killed. In UTAH, Aceria parapopuli caused severe damage at Woodruff, Rich County; Delta, Millard County; Manila, Daggett County; throughout the Uintah Basin in the northern portion of the State; and was encountered in Davis and Salt Lake Counties during the year. In CALIFORNIA, Aceria mackiei was heavy on Quercus agrifolia in Vallejo, Solano County.

MITES were generally active and damaging throughout the 1961 season in CALIFORNIA. Weather during June remained at high daytime temperatures, with occasional drying winds. Severe mite damage caused slow, continuous defoliation of street trees, with as many as 3-5 species occurring on a single host in California during the 1961 season.

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